CCD-TR330E/TR510E

SERVICE MANUAL



UK Model CCD-TR330E/TR510E E Model Hong Kong Model Australian Model

Tourist Model CCD-TR330E

AEP Model

Video8 Handycam

B MECHANISM

The remote commander RMT-713 is supplied with the CCD-TR510E but not supplied with the CCD-TR330E.

PHOTO: CCD-TR330E

Difference of point

CCD- TR330E	10× Zoom MODEL
CCD-	24× Zoom MODEL
TR510E	(with STEADY SHOT /WIDE TV)

For MECHANISM ADJUSTMENT, refer to the 8mm Video MECHANICAL ADJUSTMENT MANUAL VII " (9-973-801-11).

SPECIFICATIONS

Video Camera Recorder

Video recording system

Two rotary heads, Helical scanning, FM system

Audio recording system

Rotary heads, FM system

Video signal

PAL colour, CCIR standards

Usable cassette

8 mm video format cassette

(standard 8 mm)

Tape speed

SP mode: Approx. 20.051 mm

(13/16 in)/second

LP mode: Approx. 10.058 mm

(13/32 in)/second

Recording/Playback time

SP mode: 1 hour and 30

minutes

LP mode: 3 hours

Fastforward/rewind time Approx. 4 min.

Image devide

CCD (Charge Coupled Device)

Viewfinder

Electronic viewfinder

Combined power zoom lens, CCD-TR330E: F1.6-2.7 CCD-TR510E: F1.8-2.7

MICROFILM

Filter diameter 37

mm (1 1/2 inches), TTL autofocus system inner focus wide macro

system

CCD-TR330E:

CCD-TR510E:

12 x (optical), 24 x (digital)

Focal distance

CCD-TR330E:

f=6.3-63mm ($\frac{1}{4}-2\frac{1}{2}$ inches)

45-450 mm (113/16-173/4 inches)

when coverted to a 35 mm still

camera

CCD-TR510E:

 $f = 5.4 - 64.8 \text{ mm} (\frac{7}{32} - 2\frac{5}{8})$

inches)

39 - 468 mm (1% - 18%)

inches) when converted to a 35

mm still camera

 $47 - 564 \text{ mm} \left(1 \frac{7}{8} - 22 \frac{1}{4} \text{ inches}\right)$

Colour temperature

Auto

Minimum illumination

CCD-TR330E:

0.6 1x at F 1.6

CCD-TR510E: 4.0 lx at F 1.8

Illumination range

CCD-TR330E: 0.6 to 100,000 lx CCD-TR510E: 4.0 to 100,000 lx Recommended illumination More than 100 lx

Input and Output connectors Video output

Phono jack, 1 Vp-p, 75 Ω , unbalanced, sync negative

Audio output

Monaural, Phono jack, 327 mV,

(at load impedance 47 kΩ), impedance less than 2.2 k Ω

RFU DC OUT

Special minijack, DC 5 V

LANC jack

Stereo-mini-mini-jack (ø 2.5

MIC jack

Mini-jack, 0.388 mV, low impedance with 2.5 to 3 V DC, output impedance 6.8 kΩ (ø 3.5 mm)

General **Power requirements**

On battery mounting surface 6.0 V (battery pack), 7.5 V (AC

power adaptor) Average power consumption

CCD-TR330E: 3.8 W

CCD-TR510E: 4.1 W

Installation Vertically, Horizontally

Operating temperature

0°C to 40°C (32°F to 104°F)

Storage temperature

-20°C to +60°C (-4°F to

+140°F)

Dimensions

Approx. 110 x 103 x 202 mm $(4^{3}/8 \times 4^{1}/8 \times 8 \text{ inches}) (w/h/$

d) Mass

CCD-TR330E:

Approx. 690 g (1 lb 8 oz)

CCD-TR510E:

Approx. 700 g (1 lb 9 oz)

Excluding the battery pack, lithium battery, cassette and

shoulder strap

CCD-TR330E:

Approx. 910 g (2 lb) CCD-TR510E:

Approx. 920 g (2 lb 1 oz)

Continued on next page

8 VIDEO CAMERA RECORDER SONY Including the battery pack NP-33, lithium battery CR2025, cassette P5-90 and shoulder

Microphone

Electret condenser microphone, monaural type

Supplied accessories

See page 2.

AC power adaptor

Power requirements 110 - 240 V AC, 50/60Hz Power consumption 18 W

Output voltage

DC OUT in operation mode: 7.5 V, 1.6 A Battery charge terminal: 10 V, 1.1 A in charge mode

Application

Sony battery packs NP-33, NP-55H, NP-65, NP-66H, NP-67, NP-68, NP-77H, NP-77HD, NP-90/90D, NP-98/98D

Operating temperature

0°C to 40°C (32°F to 104°F) Storage temperature

-20°C to +60°C (-4°F to +140°F)

Dimensions

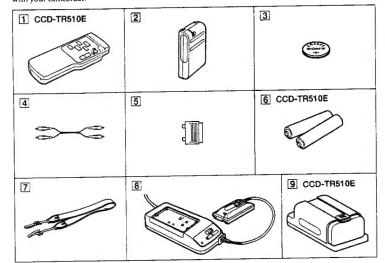
Approx. 166 x 43 x 75 mm (6 5/8 $\times 1^{11}/_{16} \times 3$ inches) (w/h/d) including projecting parts and controls

Mass

Approx. 420 g (15 oz)

Checking Supplied Accessories

Check that the following accessories are supplied with your camcorder



- 1 Wireless Remote Commander (1)
- 2 NP-33 Battery Pack (1)
- 3 CR2025 Lithium Battery (1) Already installed in the camcorder.
- 4 A/V connecting cable (1)
- 5 21-pin adaptor (1)
- 6 R6 (size AA) battery for Remote
- 7 Shoulder strap (1)
- B AC-16/V15/V16 AC power adaptor
- 9 Battery case (1)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK A OR DOTTED LINE WITH MARK A ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUB-LISHED BY SONY.

· Difference of point

CCD-	10× Zoom MODEL
TR330E	TOX ZOOM MODEL
CCD-	24× Zoom MODEL
TR510E	(with STAEDY SOHT /WIDE TV)

· Repair parts list is omitted except the followings.

10× Zoom MODEL 24× Zoom MODEL

(with STAEDY SOHT /WIDE TV)

: ×10 MODEL : ×24 MODEL

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

- Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
- Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
- Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
- Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replace-ment.
- Check the B+ voltage to see it is at the values specified.
- Flexible Circuit Board Repairing
 - Keep the temperature of the soldering iron around 270°C during repairing.
 - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
 - · Be careful not to apply force on the conductor when soldering or unsoldering.

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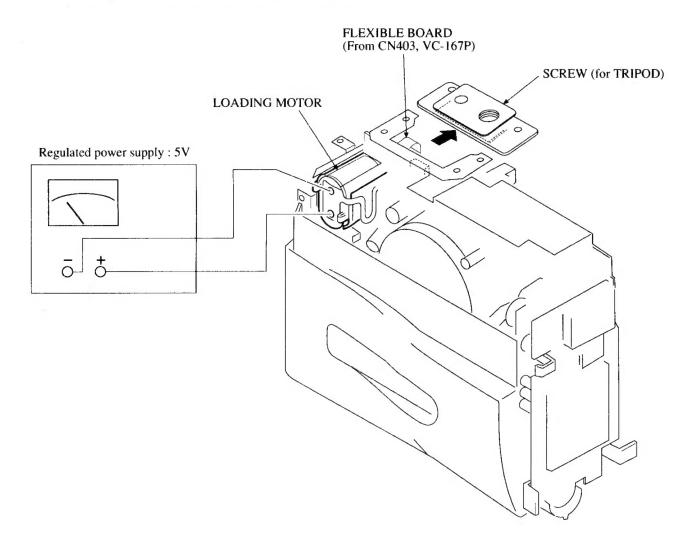
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The color reproduction frame is shown after the page of ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS.

SERVICE NOTE

· How to remove cassette if the main power cannot be switched ON. (Forced EJECT)

NOTE: To eject a cassette from the camcorder without turning on the main power, firstly remove the SCREW (for TRIPOD), then remove the FLEXIBLE BOARD as shown, and finally connect the regulated power supply; $\pm 5V$ to the loading motor, this is to protect the main circuit from damage.



SECTION 1 **GENERAL**

This section is extracted from combined instruction manual of models

CCD-TR410E/TR420E/TR440E/TR510E. This service manual can be applied to

Preparativos

Getting Started

CA AC-V15 suministrado.

Carga de la batería

Antes de utilizar la videocámara, primero tendrá

Carga y fij Preparativos

Getting Started

batería, utilice el adaptador de alimentación de

battery pack, use the supplied AC-V15 AC power charge and install the battery pack. To charge the

adaptor.

cuatro modelos de la tabla siguiente. Antes de leer

Las instrucciones de este manual abarcan los

nombre de su modelo en la base de la misma. Las

el manual y utilizar la videocámara, vea el ilustraciones de este manual son de la

Before using your camcorder, you first need to

que cargar y colocar la batería. Para cargar la

Cargue la batería en un lugar nivelado y exento de (1) Conecte el adaptador de alimentación de CA a vibraciones.

línea del adaptador de alimentación de CA, y después deslice la batería en el sentido de la (2) Alinee el lado derecho de la batería con la una toma de la red. flecha.

(3) Ponga el selector en CHARGE. La lámpara CHARGE (anaranjada) se encenderá y se

red, y después quite la batería y fijela a la videocámara.

When charging is completed, the CHARGE lamp

the battery pack in the direction of the arrow

(3) Set the selector to CHARGE. The CHARGE

Connect the AC power adaptor to the mains. the line on the AC power adaptor, then slide (2) Align the right side of the battery pack with

Charge the battery pack on a flat place without

indicará claramente en el texto, por ejemplo, "Para Las teclas y ajustes de la videocámara aparecen en

la CCD-TR510E solamente'

Cualquier diferencia en cuanto a la operación, se nombre de modelo se indicará en la ilustración.

CCD-TR420E. Pero cuando sean de la otra, su

purposes. Otherwise, the model name is indicated

are clearly indicated in the text, for example, "For

As you read through this manual, buttons and

CCD-TR510E only

settings on the camcorder are shown in capital

e.g. Set the POWER switch to CAMERA.

in the illustrations. Any differences in operation CCD-TR420E is the model used for illustration

models listed below. Before you start reading and

The instructions in this manual are for four

necking Your Model

operating, check your model number by looking

at the bottom of your camcorder. The

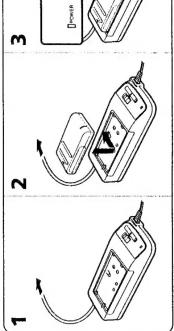
Charging the Battery Pack

then remove the battery pack and install it on the

camcorder.

goes out. Unplug the unit from the mains, and lamp (orange) lights up. Charging begins.

Cuando finalice la carga, la lámpara CHARGE se apagará. Desconecte la unidad de la toma de la iniciará la carga.



P-AABGE

carga:	
po de	
Tiem	Rater
	_
	Г

only CCD-TR510E.

Bateria	Tiempo de carga*
NP-33 (suministrada)	09
NP-55H	85
NP-65/67	105
NP-66H/68	125
NP-77H/77HD	170
Q86/86/Q06/06-dN	215

 Minutos aproximados para cargar una batería agotada utilizando el AC-V15. (A bajas temperaturas, el tiempo de carga será más

tit to

mayúsculas en todo el manual. Ej. Ponga el selector POWER en CAMERA.

Types of Differences	ifferences		۵	Diferencias en tipo	tipo	
Model	Remote	Viewfinder		Zoom	Wide TV	Steady Sho
Modelo	Commander Telemando	Visor		Zoom	Televisor	Filmación
		D1-13-13-13-14		12	panoramico estable	estable
		DIACK and White Color		12.X 12.X 12.X		
		Blanco y negro En color	color			
CCD-TR410E		•		•		
CCD-TR420E	•	•		•		
CCD-TR440E	•		•	•		
CCD-TR510E	•	•		•	•	•

compensated if recording or playback is not made due to a malfunction of the camcorder Contents of the recording cannot be video tape, etc.

compensado si la grabación o la reproducción El contenido de la grabación no puede ser funcionamiento de la videocámara, no ha sido posible debido al mal videocassette etc.

Battery pack	Charging time*
NP-33 (supplied)	09
NP-55H	85
NP-65/67	105
NP-66H/68	125
NP-77H/77HD	170
Q86/86/Q06/06-dN	215

using the AC-V15 (Lower temperatures require Approximate minutes to charge an empty pack a longer charging time.)

ဖ

Charging and Installing the Battery Pack

10F/TR420F **Battery Life**

CCD-TR410E/1K420E		
3attery pack	Typical	Continuous
	recording	recording
	time**	time***
NP-33 (Supplied)	35	70
NP-55H	20	95
NP-65/67	65	125
NP-66H/68	85	155
NP-77H/77HD	115	205
Q86/86/Q06/06-dN	145	260

CCD-TR440E

Battery pack	Typical recording	Continuous recording
	time**	time***
NP-33 (Supplied)	35	65
NP-55H	45	06
NP-65/67	09	120
NP-66H/68	15	150
NP-77H/77HD	110	200
Q86/86/Q06/06-dN	135	245

CCD-TR510E

Battery pack	Typical	Continuous
	recording	recording
	time**	time***
NP-33 (Supplied)	35	65
NP-55H	45	06
NP-65/67	09	120
NP-66H/68	72	145
NP-77H/77HD	105	195
NP-90/90D/98/98D	130	240

- you repeat recording start/stop, zooming and Approximate minutes when recording while turning the power on/off. The actual battery life may be shorter.
 - *** Approximate continuous recording time

Duración de la batería CCD-TR410E/TR420E

Batería	Tiempo de videofilmación	Tiempo de Tiempo de videofilmación
	típica**	continua***
NP-33(suministrada)	35	20
NP-55H	30	95
NP-65/67	65	125
NP-66H/68	85	155
NP-77.H/77HD	115	205
/\$6/006/06-US6	145	260

CCD-TR440E

Batería	Tiempo de videofilmación	Tiempo de Tiempo de videofilmación
	típica**	continua***
NP-53/suministrada		65
NP-55H	15	06
NP-65/67	. 09	120
NP-66H/68	22	150
NP-77H/77HD	110	200
NP-90/90D/98/	135	245
	1	

Slide the battery pack in the direction of the

arrow.

Removing the Battery Pack

rapidly in the viewfinder.

CCD-TR510E

Batería	Tiempo de videofilmación	Tiempo de Tiempo de videofilmación
	típica**	continua***
NP-33(suministrada)	35	65
NP-55H	45	06
NP-65/67	09	120
NP-66H/68	75	145
NP-77H/77HD	105	195
/S6/Q06/06-4N 98D	130	240

- repitiendo el inicio/la parada de la grabación, alimentación. Es posible que la duración de la ** Minutos aproximados cuando videofilme el zoom y la conexión/desconexión de la batería actual sea más corta.
- *** Tiempo aproximado de videofilmación continua en interiores.

|Importantel

Utilice completamente la batería antes de recargarial

disminuva. Sin embargo, será posible recuperar la capacidad original de la batería si la vuelve a La carga repetida sin la batería completamente descargada hará que la capacidad de la misma Antes de recargar la batería, asegúrese de que la batería esté completamente agotada (descargada).

Before you recharge the battery, make sure the

Use the battery completely before re-

chargingl

Important!

However, the original battery capacity can be

recovered if you use the battery completely

and charge it fully again.

remains causes a lowering of battery capacity.

Repeated charging while some capacity hattery has been used up (discharged)

completely.

Para utilizar la batería completamente, extraiga videocámara hasta que en el visor parpadeen rápidamente el indicador ⇔ y la lámpara roja. el videocassette, gire el selector POWER hasta CAMERA, y con la batería fijada deje la

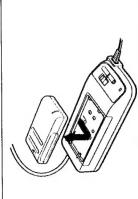
turn the POWER switch to CAMERA with the battery attached, and leave the camcorder until the CZ indicator and the red lamp flash

To use up the battery, remove the cassette and

utilizar y cargar por completo.

Para quitar la batería

Deslícela en el sentido de la flecha.



Notes on charging the battery pack

- The POWER lamp will remain lit for a while even if the battery pack is removed and the mains lead is unplugged after charging the battery pack. This is normal.
- the mains lead and set the selector to CHARGE If the POWER lamp does not light, set the selector to VTR (DC OUT) and disconnect the mains lead. After about one minute, reconnect
- You cannot operate the camcorder using the AC power adaptor while charging the battery pack.

Notas sobre la carga de la batería

- encendida durante un momento después de que Es normal que la lámpara POWER permanezca haya quitado la batería y desconectado el cable
- selector en VTR (DC OUT) y desconecte el cable de alimentación. Después de aproximadamente Si la lámpara POWER no se enciende, ponga el un minuto, vuelva a conectar el cable y a poner de alimentación cuando finalice la carga.
 - No podrá operar la videocámara empleando el adaptador de alimentación de CA mientras esté el selector en CHARGE. cargando la batería.

Charging and Installing the Battery Pack

Installing the Battery Pack

- (2) Push the battery pack so that it attaches firmly. (1) Insert the top of the battery pack into the top of the battery mounting surface.
- b: You can hear the beep sound to confirm your operation.

Fijación de la batería

- (2) Empuje la hateria de forma que ésta quede (1) Inserte la cabeza de la batería en la parte superior de la superficie de montaje.
- 🎉 Usted podrž oir un pitido para confirmar su

firmemente fijada.

operación.



(3) Press the PUSH mark on the cassette compartment to close it. The cassette compartment automatically closes. window facing out.

1: You can hear the beep sound to confirm your operation.

alimentación conectada a la videocámara. Asegúrese de que haya una fuente de

Inserción de un

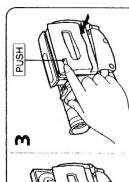
El compartimiento del videocassette se abrirá azul, deslice EJECT en el sentido de la flecha. (1) Manteniendo presionado el pequeño botón automáticamente.

(2) Inserte un videocassette (no suministrado) con (3) Presione la marca PUSH en el compartimiento del videocassette para cerrarlo. El la ventanilla hacia afuera.

compartimiento se cerrará automáticamente. b: Usted podrá oir un pitido para confirmar su

Getting Started

operación.



Preparativos

2

EJECT

To Eject the Cassette

While pressing the small blue button, slide EJECT in the direction of the arrow.

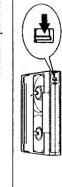
To Prevent Accidental Erasure

flash in the viewfinder, and you cannot record on beeps sound for a while. If you try to record with exposed and close the cassette compartment, the the red mark exposed, the © and ♣ indicators the tape. To re-record on this tape, slide the tab Slide the tab on the cassette to expose the red If you insert the cassette with the red mark mark.

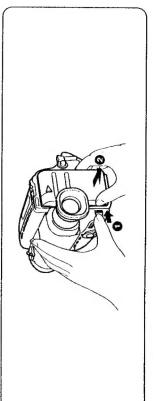
back out to cover the red mark.

Manteniendo presionado el pequeño botón azul, Para expulsar el videocassette deslice EJECT en el sentido de la flecha.

Deslice la lengüeta del videocassette de forma que momento. Si intenta grabar con la marca roja al volver a grabar en esta cinta, deslice la lengüeta Si inserta un videocassette con la marca roja al Para prevenir el borrado accidental indicadores @ y ♠, y no podrá grabar. Para videocassette, sonará un pítido durante un descubierto y cierra el compartimiento del descubierto, en el visor parpadearán los de forma que se cubra la marca roja. la marca roja quede al descubierto.



Deslice BATT, y después tire de la parte inferior Para quitar la bateria de la batería. Slide BATT, and then pull the lower part of the Removing the Battery Pack battery pack.



Operaciones básicas

Make sure that a power source and a cassette is

Camera Recor

Basic Operations

time (p. 40) before you start recording. When you recorded for 10 seconds after you start recording reset the date and time, the date is automatically (AUTO DATE feature). This feature works only power on it and reset the date and time to your When you use the camcorder for the first time, nserted.

Before you record one-time events, you may want to make a trial recording to make sure that you are using the camcorder correctly. once a day.

- (1) While pressing the small green button on the (2) Slide the START/STOP MODE switch to 当 POWER switch, turn it to CAMERA.
 - (3) Turn STANDBY up. The "STBY" indicator appears in the viewfinder.
- camcorder starts recording and the "STBY" indicator changes to the "REC" indicator. (4) Press START/STOP (red button). The

You can also select Recording mode, SP (standard MODE (P. 36) according to the length of your play) mode or LP (long play) mode. Set REC planned recording before you start

1: You can hear the beep sound to confirm your operation.

alimentación conectada y un videocassette Asegúrese de que haya una fuente de insertado.

Antes de realizar videofilmaciones irrepetibles, se hora actual (pág. 40). Cuando las reajuste, la fecha recomienda realizar una filmación de prueba a fin se grabará automáticamente durante 10 segundos AUTO DATE (grabación automática de la fecha)]. Cuando utilice la videocámara por primera vez, a partir del inicio de la videofilmación [función conecte la alimentación y reajuste la fecha y la de comprobar si la videocámara funciona Esta función sólo trabajará una vez al día. correctamente.

(1) Manteniendo presionado el pequeño botón verde en el selector POWER, girelo hasta

<u>[a]</u>

(2) Deslice el selector START/STOP MODE hasta CAMERA.

(3) Gire STANDBY hacia arriba. En el visor

aparecerá el indicador "STBY".

(4) Presione START/STOP (tecla roja). La videocámara comenzará a grabar y el indicador "STBY" cambiará a "REC'

grabación, modo SP (reproducción normal) o LP (reproducción larga). Ajuste REC MODE (pág. 36) de acuerdo con la duración de la filmación Usted también podrá seleccionar el modo de planeada antes de comenzar.

1: Usted podrá oir un pitido para confirmar su operación.

in the viewfinder changes to the "STBY" indicator Press START/STOP again. The "REC" indicator **fo Stop Recording Momentarily [a]** (Standby mode).

"REC" cambiará al indicador "STBY" (Modo de Para detener momentáneamente la Presione otra vez START/STOP. El indicador grabación [a] To Finish Recording [b]

Para finalizar la grabación [b] Press START/STOP. Turn STANDBY down, and

Después extraiga el videocassette (pág. 11) y quite Presione START/STOP, gire STANDBY hacia abajo y ponga el selector POWER en OFF. la batería (pág. 10).

Then, eject the cassette (p. 11) and remove the

battery (p. 10).

set the POWER switch to OFF.



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STBY 0:35:20

Nota sobre el modo de espera

If you leave the camcorder for 5 minutes or more

Note on Standby mode

with a cassette inserted in Standby mode, the

camcorder goes off automatically. This prevents tape. To resume Standby mode, turn STANDBY

wearing down the battery and wearing out the

down once and turn it up again. To start

recording, press START/STOP.

automáticamente. Esto evitará que la batería y el modo de espera, gire una vez STANDBY hacia rideocassette se desgasten. Para restablecer el durante 5 minutos o más con el videocassette Si deja la videocámara en el modo de espera comenzar a grabar, presione START/STOP. abajo y después otra vez hacia arriba. Para insertado, la videocámara se apagará

Operaciones básicas

Para enfocar la lente del visor

If the viewfinder is not in focus at all or when you

To Focus the Viewfinder Lens

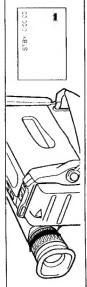
use the camcorder after someone else has used it,

focus the viewfinder lens. Turn the viewfinder

lens adjustment ring so that the indicators in the

riewfinder come into sharp focus.

cuando vaya a utilizar la videocámara después de Cuando el visor no esté enfocado en absoluto, o haberla empleado otra persona,enfoque la lente del visor. Gire el anillo de ajuste de la lente del visor de forma que los indicadores del visor queden nitidamente enfocados.



STBY 0:00:00

AUTO DATE

.

STBY 0:00:00

Note on the indicators in the viewfinder

Los indicadores aparecerán solamente en el modo CAMERA. Éstos no aparecerán en el modo Nota sobre los indicadores en el visor PLAYER.

The indicators appear in CAMERA mode only. They do not appear in PLAYER mode.

REC 0:00:00

6

START/STOP MODE

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12

-1 SE-

Camera Recording

Videofilmación

Recording with the START/STOP button depressed

START/STOP button work this way, slide the START/STOP MODE switch to []. [a] down the START/STOP button. To make the You can also make recording while pressing

Shooting scenery in several short takes

You can automatically make recording for about 5 START/STOP button work this way, slide the seconds with the 5 SEC (p. 32). To make the START/STOP MODE switch to 5 SEC. [b]

Grabación con la tecla START/STOP presionada Usted también podrá grabar presionando la tecla START/STOP de esta manera, deslice el selector START/STOP. Para hacer funcionar la tecla START/STOP MODE hasta 👃 . [a]

sounds when you turn the power on or when you stop recording, confirming the operation. Several

As indicated with I in the illustrations, a beep

Note on beep sound

start recording and two beeps sound when you

beeps also sound as a warning of any unusual

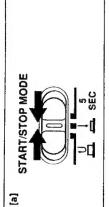
beep sound is not recorded on the tape. If you do condition of the camcorder (p. 70). Note that the

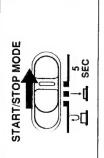
not want to hear the beep sound, set BEEP to

'OFF" (p. 36).

Videofilmación de escenas en varias tomas

automáticamente durante unos 5 segundos. Para manera, deslice el selector START/STOP MODE Utilizando 5 SEC (pág.32), podrá videofilmar que la tecla START/STOP funcione de esta hasta 5 SEC. [b] cortas





Note on recording

When you record from the beginning of the tape, missing any start-up scenes when you play back run the tape for about 15 seconds before actual recording. This prevents the camcorder from

Recording mode

(approximately 20.051 mm/second) and in the LP mode (approximately 10.058 mm/second) (p. 36) and can play back in the SP mode and LP mode. The playback quality in the LP mode, however, will not be as good as that in the SP mode. This camcorder records in the SP mode

Notes on the tape counter

- several seconds from the actual time. To set the The tape counter indicates the recording time. Use it as a guide. There will be a time lag of counter to zero, press COUNTER RESET located below the viewfinder.
 - tape using the tape counter, record in same (SP recording time. When you intend to edit the · If the tape is recorded in SP and LP modes mixed, the tape counter shows incorrect or LP) mode.

Nota sobre la grabación

Cuando grabe desde el comienzo de la cinta, haga comenzar la videofilmación actual. Esto evitará que se pierdan las escenas iniciales cuando se que ésta avance unos 15 segundos antes de reproduzca la cinta.

Modo de grabación

(aproximadamente 10,058 mm/segundo) (pág. 36) calidad de las imágenes reproducidas en el modo y reproduce en ambos modos. Sin embargo, la (aproximadamente 20,051 mm/segundo) y LP LP no será tan buena como en el modo SP. Esta videocámara graba en los modos SP

Notas sobre el contador de la cinta

que exista una diferencia de varios segundos del grabación. Empléelo como una guía. Es posible presione COUNTER RESET situada debajo del El contador de la cinta indicará el tiempo de tiempo real. Para ajustar el contador a cero,

intente editar la cinta utilizando el contador de Si la cinta se ha grabado en los modos SP y LP tiempo de videofilmación incorrecto. Cuando mezclados, el contador de la cinta indicará un la cinta, grabe en el mismo modo (SP o LP).

Nota sobre el pitido

Como se indica con la marca 1 en las ilustraciones de este manual, cuando conecte la alimentación o dos pitidos para confirmar la operación. También Tenga en cuenta que los pitidos no se grabarán en sonarán varios pitidos como advertencia de una pitido, y cuando pare la videofilmación sonarán la cinta. Si no desea oir los pitidos, ponga BEEP condición anormal de la videocámara (pág. 70). cuando comience la videofilmación, sonará un en "OFF" (pág. 36).

Nota sobre la función AUTO DATE

models at the factory. You can reset the clock (p.

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However, the date may automatically appear The AUTO DATE feature works once a day.

 vou reset the date and time. more than once a day when:

Kingdom models and Paris for other European

The clock is set to London for the United

Note on the AUTO DATE feature

Unido y a la de París en otros modelos europeos. automáticamente más de una vez al día cuando: La función AUTÓ DATE se activará una vez al Londres en los modelos destinados al Reino El reloj está ajustado en fábrica a la hora de día. Sin embargo, la fecha aparecerá El reloj puede reajustarse (pág. 40). reajuste la fecha y la hora.

- extraiga y vuelva a insertar el videocassette. pare la grabación antes de 10 segundos.

Cuando se mueva del interior al exterior (o

15 segundos de forma que el equilibrio del blanco videocámara hacia un objeto blanco durante unos Gire STANDBY hacia arriba y apunte con la se ajuste apropiadamente. viceversa)

Turn STANDBY up and point the camcorder at a white object for about 15 seconds so that the white

balance is properly adjusted.

When moving from indoors to outdoors (or

vice versa)

you stop recording within 10 seconds. vou eject and insert the cassette again.

Camera Recording

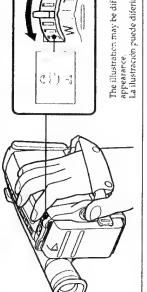
Using the Zoom Feature

Zooming is a recording technique that lets you change the size of the subject in the scene. For mere professional-looking recordings, use the zoom sparingly

W side: for wide-angle (subject appears farther side: for telephoto (subject appears closer)

Empleo del zoom

El zoom es una técnica de videofilmación que le para telefoto (el motivo se ve cercano) profesional, utilice el zoom en forma limitada. para gran angular (el motivo se ve permite cambiar el tamaño del motivo en la escena. Para filmaciones de aspecto más Lado T: Lado W:



The illustration may be different from the actual La ilustración puede diferir del aspecto actual.

velocidad v gírela un poco para hacerlo a una motorizado para efectuar el zoom a gran Gire completamente la palanca del 200m velocidad relativamente lenta. Velocidad del zoom

Notas sobre el zoom digital (para la CCD-TR510E solamente)

You can select 12 x or 24 x of zooming.

• More than 12 x zoom is performed digitally, and

the picture quality deteriorates as you go toward the T side. If you do not want to use the digital zoom set the ZOOM function to x12 (p. The vertically bar in the power zoom indicator the bar [a]) and the optical zooming zone (left

Usted podrá elegir entre el zoom de 12 y 24 aumentos.

deteriorá a medida que se acerque hacia el lado T. Si no desea utilizar el zoom digital, ajuste la El zoom de más de 12 aumentos se realizará digitalmente, y la calidad de la imagen se función del zoom a x12 (pág. 36)

separates the digital zooming zone (right side of

side of the bar [b]). If you slide the ZOOM

switch to x12, the right side of the bar [a]

zoom óptico (lado izquierdo de la barra [b]), motorizado separa la zona del zoom digital (lado derecho de la barra [a]) de la zona del desliza el selector ZOOM hasta x12, el lado La barra vertical en el indicador del zoom lerecho de la barra [a] desaparecerá.

When you shoot a subject using a telephoto

Cuando videofilme un motivo empleando el

acercamiento con el zoom

(about 2.6 feet) away from the lens surface in the If you cannot get a sharp focus while in extreme telephoto position, or 1 cm (about 1/2 inches) in You can shoot a subject that is at least 80 cm telephoto zoom, turn the power zoom lever towards the W side until the focus is sharp. the wide-angle position.

lo menos a 80 cm de la superficie del objetivo en la gire la palanca del zoom motorizado hacia el lado W hasta enfocar nítidamente. videofilme con el zoom en el extremo del telefoto, Usted podrá videofilmar un motivo que esté por posición de telefoto, y a 1 cm en la de gran Si no puede enfocar nítidamente cuando angular.

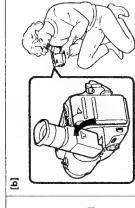
Para videofilmar con la videocámara en las sujetándola como se indica a continuación: manos, podrá obtener mejores imágenes

holding the camcorder according to the following

suggestions:

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For hand-held shots, you'll get better results



pueda manipular fácilmente los controles con el Sujete la videocámara firmemente y asegúrela con la correa de la empuñadura de modo que

the grip strap so that you can easily manipulate

Place your right elbow against your side.

the controls with your thumb. [a]

support it. Do not cover the microphone with Place your left hand under the camcorder to

Place your eye firmly against the viewfinder

your fingers.

· Use the viewfinder frame as a guide to

evecup

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determine the horizontal plane.

Hold the camcorder firmly and secure it with

- Coloque su codo derecho firmemente contra su pulgar. [a] costado.
- videocámara para sostenerla. No cubra el Coloque su mano izquierda debajo de la micrófono con sus dedos.
- Para determinar el plano horizontal, utilice el Apoye el ocular del visor de la videocámara firmemente contra su ojo.

interesting recording angle. Turn the viewfinder

up for recording from a low position. [b]

You can also record in a low position to get an

interesante, usted también podrá grabar desde posición baja, gire el visor hacia arriba. [b] Para obtener un ángulo de videofilmación una posición baja. Para grabar desde una cuadro del visor como referencia.

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Jurn the power zoom lever fully for a high-speed

Zooming Speed

zoom. Turn it lightly for a relatively slow zoom.

Notes on Digital Zoom (for CCD-

FR510E only)

19

Consejos para videofilmar mejor Hints for Better Shooting

Place the camcorder on a flat surface or use a

other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with Iry placing the camcorder on a table top or any

When attaching a non-Sony tripod, make sure the Otherwise, the screw may damage the inner parts tripod screw is shorter than 6.5 mm (9/32 in). the camcorder (p. 62). of the camcorder.

Cautions on the viewfinder

- Do not pick up the camcorder by the viewfinder
- viewfinder toward the sun. The inside of the viewfinder may be deformed. Be careful in placing the camcorder under sunlight or by the Do not place the camcorder so as to point the window. [d]

Coloque la videocámara en una superficie plana o utilice un tripode

Pruebe colocando la videocámara sobre una mesa posee un trípode para cámara fotográfica, podrá emplearlo también con esta videocámara (pág. u otra superficie plana de altura adecuada. Si

trípode sea inferior a 6,5mm. De lo contrario, es posible que el tornillo dañe las partes internas de asegúrese de que la longitud del tornillo del Cuando utilice un trípode que no sea Sony, a videocámara.

Hold down the - side of EDITSEARCH until the camcorder goes back to the scene you want. The

last recorded portion is played back. To go forward, hold down the + side (Editsearch).

recorded portion plays back (Rec Review).

(3) Press EDITSEARCH. Press the - (3) side momentarily, the last few seconds of the

(2) Turn STANDBY up.

Precauciones sobre el visor

- hacia el sol. Es posible que el interior del visor se deforme. Tenga cuidado al dejar la videocámara No sujete la videocámara por el visor. [c]
 No deje la videocámara con el visor apuntando bajo el sol o cerca de una ventana. [d]

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Utilizando EDITSEARCH, usted podrá revisar la

mågenes gr

Checking the Recorded

última escena grabada o comprobar la imagen grabada en el visor. (1) Manteniendo presionado el pequeño botón verde en el selector POWER, gírelo hasta CAMERA.

(1) While pressing the small green button on the POWER switch, turn it to CAMERA.

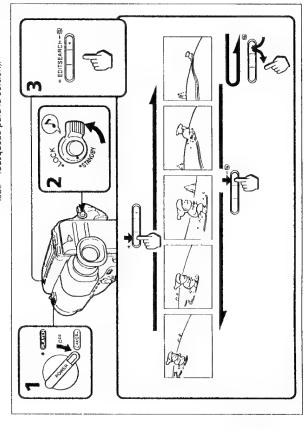
recorded scene or check the recorded picture in

the viewfinder.

Using EDITSEARCH, you can review the last

reproducirán los últimos segundos de la parte momentáneamente el lado − (€). Se (2) Gire STANDBY hacia arriba.
(3) Presione EDITSEARCH. Presione

Mantenga presionado el lado - de EDITSEARCH deseada. La última parte filmada se reproducirá. Para avanzar la cinta, mantenga presionado el hasta que la cinta retroceda hasta la escena filmada (Revisión de la grabación). lado + (Búsqueda para la edición).



To Begin Re-recording

between the last scene you recorded and the next Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the cassette, the transition scene you record will be smooth.

Para reanudar la grabación

Mientras no extraiga el videocassette, la transición entre la última escena grabada v la siguiente será Presione START/STOP. La grahación se iniciará desde el punto en el que soltó EDITSEARCH.

Conexiones ections for

You can use this camcorder as a VCR by connecting it to your TV for playback. It is recommended to use the mains as the power source (p.25) Connect the camcorder to LINE IN on the VCR by using the supplied A/V connecting cable. Set the input selector on the VCR to LINE. Set the TV/ VCR selector to VCR on the TV.

videograbadora conectándola a su televisor. Se recomienda utilizar la corriente de la red como Para la reproducción, usted podrá utilizar esta videocámara para que funcione como fuente de alimentación (pág.25).

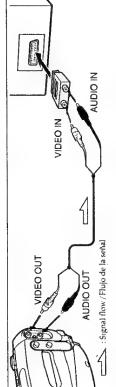
videograbadora empleando el cable conector de audio/vídeo suministrado. Ponga el selector de entrada de la videograbadora en LINE, y el selector TV/VCR del televisor en VCR. Conecte la videocámara a LINE IN de la

If Your TV/VCR has a 21-pin Connector (EUROCONNECTOR)

Use the supplied 21-pin adaptor.

Si su televisor o videograbadora posee conector de 21 terminales (EUROCONNECTOR) Utilice el adaptador de 21 terminales

suministrado.



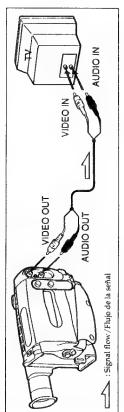
To connect a TV or a VCR without Video/ Use an RFU adaptor (not supplied). Audio input jacks

Conexión a un televior o una videograbadora sin tomas de entrada de video/audio Utilice un adaptador de RFU (no suministrado).

2 AUDIO IN VIDEO IN : Signal flow/Fluyo de la señal VIDEO OUT AUDIO OUT

Connect the camcorder to your TV by using the the supplied A/V connecting cable. Set the TV/VCR selector to VCR on the TV. Connecting Directly to a TV

Conecte la videocámara al televisor empleando el Ponga el selector TV/VCR del televisor en VCR. cable conector de audio/vídeo suministrado. Conexión directa a un televisor



o PP durante el avance de la cinta. Para reanudar

la reproducción normal, presione 🚩

Reproducción de cintas

Playing Back a Talge

screen, after connecting the camcorder to the TV/ VCR (p. 20). You can control playback using the You can monitor the playback picture in the viewfinder. You can also monitor on the TV supplied Remote Commander* (For CCD-TR420E/TR440E/TR510E only, p. 65).

The Remote Commanders are available on * For CCD-TR410E users:

option.

- (1) While pressing the small green button on the POWER switch, turn it to PLAYER
 - (2) Insert the recorded tape with the window
 - (3) Press F. Playback starts.
- J: You can hear the beep sound to confirm your operation.

Usted podrá ver las imágenes reproducidas en el suministrado* (Para la CCD-TR420E/TR440E/ visor y también en la pantalla de televisor si conecta la videocamara a un televisor o una controlar la reproducción con el telemando videograbadora (pág. 20). También podrá TR510E solamente, pág. 65).

- Los telemandos están disponibles en opción. * Para los usuarios de la CCD-TR410E:
- (1) Manteniendo presionado el pequeño botón verde en el selector POWER, gírelo hasta PLAYER
 - (2) Inserte una cinta grabada con la ventanilla hacia afuera.
 - (3) Presione V. Se iniciará la reproducción.

 D: Usted podrá oir un pitido para confirmar su operación.

Press 💶 during playback. To resume playback, To view a still picture (playback pause) Various Playback Modes press II or

Keep pressing ◆◆ or ▶▶ during playback. To To locate a scene (Picture Search)

Keep pressing ← while rewinding or ▶▶ while advancing the tape. To resume normal playback, To monitor the high-speed picture during resume normal playback, release the button. fastforward or rewind (Skip Scan)

the picture playback in the forward (+) or reverse Press EDITSEARCH in playback pause mode. If you keep pressing EDITSEARCH, you can view To view the picture in a sequence of stopmotion images

Notes on playback

direction.

- Streaks appear and the sound is muted in the various playback modes.
- more, the camcorder automatically enters stop When still picture mode lasts for 5 minutes or mode.

Para ver una imagen fija (reproducción en Diversos modos de reproducción (esned

reanudar la reproducción, presione 🛮 o 💌 Presione II durante la reproducción. Para

reproducción. Para reanudar la reproducción Mantenga presionada ◀◀ o ▶▶ durante la Para localizar una escena (búsqueda de normal, suelte la tecla. imágenes)

Mantenga presionada 🔫 durante el rebobinado durante el avance rápido o el rebobinado Para ver las imágenes a gran velocidad (Exploración con salto)

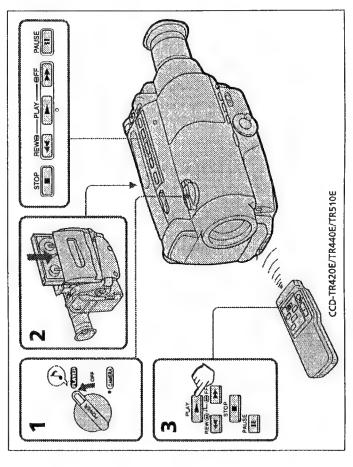
reproducción en pausa. Si la mantiene presionada podrá ver las imágenes en el sentido progresivo Para ver una secuencia de imágenes fijas Presione EDITSEARCH en el modo de (+) o regresivo (-).

Notas sobre la reproducción

aparecerán franjas y el sonido se silenciará. En los diversos modos de reproducción

Operaciones básicas

o más, la videocámara pasará automáticamente Cuando el modo de imagen fija dure 5 mínutos al modo de parada.



To fast-forward the tape, press To rewind the tape, press ← To stop playback, press 🖿

Para rebobinar la cinta, presione ← C. Para hacer que la cinta avance rápidamente, Para cesar la reproducción, presione 🔳 presione

Operaciones avanzadas **Alternate** Advanced Operations

sources for your camcorder: battery pack (P.7), the mains, and 12/24 V car battery. Choose the appropriate power source depending on where You can choose any of the following power you want to use your camcorder.

Place	Power	Accessory to be used	
	source		_
Indoors	House	AC power adaptor	<u> </u>
	current	AC-V15 (supplied),	
		AC-510	
Outdoor	Battery pack	Battery pack Battery pack NP-33	
		(supplied), NP-55H,	
		NP-65/67, NP-66H/68,	L
		NP-77H/77HD, NP-	
		90/90D, NP-98/98D	
	LR6 (size	Battery case (supplied)	_
	AA) Sony		
	Alkaline	-	
	battery.		
In the car	12 V or 24 V	DC pack DCP-77	
	car battery		_].

200	Fuente de	Accesorio necesari
	alimentación	
Interiores	Corriente de	Adaptador de
	la red	alimentación de CA
		AC-V15
		(suministrado),
		AC-510
Exteriores	Batería	Batería NP-33
		(suministrada), NP-
		55H, NP-65/67, NP
		66H/68, NP-77H/
		77HD, NP-90/90D,
		NP-98/98D
	Pilas alcalinas	Caja de pilas
-24 80	LR6 (tamaño	(suministrada)
	A.A. Sony	
En un	Batería de	Paquete de CC
automóv	automóvil de	DCP-77
	12 V o 24 V	

product is a genuine product This mark indicates that this

related to our 8mm video

equipment.

producto es genuino y está Esta marca indica que este

relacionado con nuestro equipo productos de vídeo relacionados de 8mm que dispongan de esta marca u otros con nuestro video de 8mm, recomendamos elegir los A la hora de adquirir nuestro equipo de de vídeo de 8mm. logotipo.

> recommend that you purchase related 8mm video When purchasing our 8mm video equipment, we

products provided with the same mark or products provided with our logotype mark.

Con esta videocámara podrá elegir cualquiera de las siguientes fuentes de alimentación; batería (pág.7), corriente de la red, y batería de un automóvil de 12 24 V. Elija la fuente de

ón alternativas

(1) Connect the mains lead to a wall outlet. Insert mounting surface. Push the connecting plate power adaptor into the top of to the battery the top of the connecting plate of the AC Set the selector to VTR (DC OUT). so that it attaches firmly. alimentación apropiada de acuerdo con el lugar donde desee utilizar la videocámara.

): You can hear the beep sound to confirm your operation.

Utilización con la corriente de la red

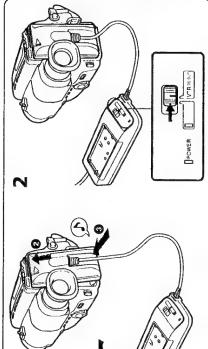
Para utilizar el adaptador de alimentación de CA AC-V15 suministrado:

To use the supplied AC-V15 AC power adaptor:

Using the Mains

de la red. Inserte la parte superior de la placa (1) Conecte el cable de alimentación a una toma conectora del adaptador de alimentación de CA en la parte superior de la superficie de Empuje la placa de forma que ésta quede montaje de la bateria de la videocámara. firmemente fijada.

P: Usted podrá oir el pitido para confirmar la (2) Ponga el selector en VTR (DC OLT). operación.



WARNING

Mains lead must only be changed at qualified service shop.

PRECAUTIONS

wall outlet, even if the set itself has been turned The set is not disconnected from the AC power source (mains) as long as it is connected to the

Notes on the POWER lamp

even if the unit is unplugged after use. This is The POWER lamp will remain lit for a while · If the POWER lamp does not light, set the normal.

To remove the adaptor

mains lead. After about one minute, try again.

selector to VTR (DC OUT) and disconnect the

The adaptor is removed in the same way as the battery pack. (p. 10)

ADVERTENCIA

cambiarse solamente en una estación de servicios El cable de alimentación de la red deberá cualificada. PRECAUCIÓN

alimentación de CA (red) mientras esté enchufado en una toma de la misma, incluso aunque haya Este aparato no se desconectará de la fuente de Es normal que esta lampara permanezca Notas sobre la lámpara POWER desconectado su alimentación.

 Cuando la lámpara POWER no se encienda, desenchufe la unidad después de utilizarla. encendida durante un momento aunque ponga el selector en VTR (DC OUT) y desconecte el cable de alimentación.

Aproximadamente un minuto después, trate

Para quitar el adaptador Quítelo igual que la batería (pág.10).

Using Alternate Power

Utilizacion de fuentes de

Using the Battery Case

Use the battery case (supplied) and six LR6 (size (1) Remove the battery holder from the battery AA) Sony alkaline batteries (not supplied).

holder to be sure the batteries are installed in battery holder, following the marking on the (2) Insert six new alkaline batteries into the

(3) Insert the battery holder with the alkaline the correct direction. batteries.

batteries to the battery mounting surface of the camcorder in the same way as the battery pack (4) Insert the battery case with the alkaline

Utilización de la caja de pilas

Utilice la caja de pilas (suministrada) y seis pilas alcalinas LR6 (tamaño AA) Sony (no suministradas).

portapilas para asegurarse de que las pilas queden instaladas en el sentido correcto. (1) Quite el portapilas de la caja de pilas. (2) Inserte seis pilas alcalinas nuevas en el portapilas, siguiendo la marcación del

superficie de montaje de la videocámara de la (3) Inserte el portapilas con las pilas alcalinas. (4) Fije la caja de pilas con las pilas alcalinas a la misma forma que la batería (pág. 10).

Use the DCP-77 DC pack (not supplied). Connect the cord of the DC pack to the cigarette lighter socket of a car (12 V or 24 V). Connect the DC pack to the battery mounting surface of the camcorder.

battery pack (p. 10).

Options for Charging the **Battery Pack**

automóvil

To remove the DC pack The DC pack is removed in the same way as the

up or not with this adaptor because it has a AC-S10 AC power adaptor: discharging function.

Using a Car Battery

You can charge a battery pack whether it is used

Utilización con la batería de un

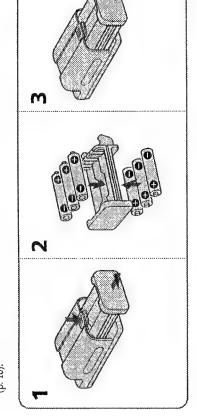
suministrado). Conecte el cable del paquete de CC automóvil (12 o 24 V). Conecte el paquete de CC a a la toma del encendedor de cigarrillos de un la superficie de montaje de la batería de la Emplee un paquete de CC DCP-77 (no

Quítelo igual que la batería (pág.10). Para quitar el paquete de CC

videocámara.

Opciones para cargar la batería

usted podrá cargar la batería independientemente Como este adaptador posee función de descarga, Adaptador de alimentación de CA AC-S10: de que ésta se haya agotado o no.



Using Sony alkaline batteries **Battery Life**

Continuaus recording 90 min. 75 min. time recording 50 min. 40 min. Typical CCD-TR410E/ CCD-TR440E/ TR420E TR510E Model

Note

The battery life may be shorter depending on the using environment.

When you replace the batteries, be sure to remove The battery case is removed in the same way as the battery case from the camcorder to prevent To remove the battery case the battery pack (p. 10).

Utilizando pilas alcalinas Sony Duración de las pilas

Tiempo de videofilmación continua	90 min.	75 min.
Tiempo de videofilmación típica	50 min.	40 min.
Modela	CCD-TR410E/ TR420E	CCD-TR440E/ TR510E

Nota

Es posible que la duración de las pilas sea más corta según el ambiente en que las utilice.

la caja de pilas de la videocámara para evitar mal Quando reemplace las pilas, cerciórese de quitar Quítela igual que la batería (pág. 10). Para quitar la caja de pilas functionamientos.

malfunction.

Grabación de la fecha o la hora ecording with the Date or

the date and time at the same time. Except for the Before you start recording, press DATE or TIME. You can record the date or time displayed in the viewfinder with the picture. You cannot record date or time indicator, no indicator in the viewfinder is recorded.

Kingdom models and Paris for other European The clock is set to London for the United models at the factory.

imágenes la fecha o la hora visualizada en el visor tiempo. Además de los indicadores de la fecha y La fecha y la hora no podrán grabarse al mismo Antes de comenzar la videofilmación, presione la hora, no se grabará ninguno de los demás DATE o TIME. Usted podrá grabar con las indicadores del visor.

El reloj ha sido ajustado en fábrica a la hora de Londres para los modelos destinados al Reino Unido y a la de París para los demás modelos europeos.

<u>ত</u> ø **BACK LIGHT**

REC 0:07 12

PATE (†

[a] Subject is too dark because of backlight.[b] Subject becomes bright with backlight compensation.

7.30:00

TIME(NEXT)

GE)

After Shooting

Para cesar la grabación de la fecha o

la hora

Press DATE or TIME again. Recording continues.

To Stop Recording with the Date or

Vuelva a presionar DATE o TIME. La grabación de las imágenes continuará.

Press BACK LIGHT again to let the 🖪 indicator go out under normal lighting condition. Otherwise, the picture will be too bright under normal lighting condition.

This function is also effective under following

- · A subject with a light source nearby or a mirror
 - use this function.

Cuando videofilme un motivo con la fuente de iluminación detrás de él o a contraluz, utilice BACK LIGHT.

When you shoot a subject with the light source

sehind the subject or a subject with a light

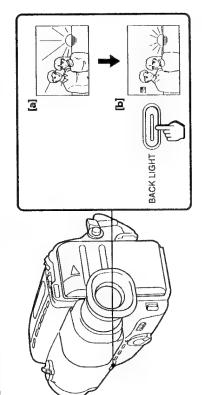
background, use the BACK LIGHT.

Press BACK LIGHT. The 🖾 indicator appears

inside the viewfinder.

Videofilmación a

Presione BACK LIGHT. En el visor aparecerá el indicador 🖾.



conditions:

- On the snow e.g. at the ski resort At the beach under strong sunshine
- reflecting light
- Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not A white subject against a white background.

- [a] El motivo está demasiado oscuro debido al contraluz.
- [b] El motivo se ve claro con la compensación del la condición normal. De lo contrario, las imágenes desaparezca el indicador 🖪 con la iluminación en Vuelva a presionar BACK LIGHT de forma que se grabarán demasiado brillantes con la Después de la videofilmación contraluz.

Esta función también será efectiva en las

iluminación en condición normal.

- siguientes condiciones:

 Paisaje de nieve, por ej. en un campo de esquí. En una playa con luz solar fuerte.
 - Un motivo con una fuente de iluminación cercana o un espejo que refleje luz.

Operaciones avanzadas

Especialmente cuando videofilme una persona vestida con ropa brillante como de seda o fibra sintética sin utilizar la función BACK LIGHT, el Un motivo blanco contra un fondo blanco. rostro tenderá a grabarse oscuro.

Exposure) modes to suit your shooting situation. When you use PROGRAM AE, you can capture You can select from three PROGRAM AE (Auto high-speed action or night views.

examples.

Select the best mode by using the following Selecting the Best Mode

AE, podrá captar una acción a gran velocidad o programada), de acuerdo con la condición de videofilmación. Con la función de PROGRAM Usted podrá seleccionar entre tres modos de PROGRAM AE (exposición automática grabar vistas noctumas.

Selección del modo apropiado

Seleccione el modo apropiado consultando los siguientes ejemplos.

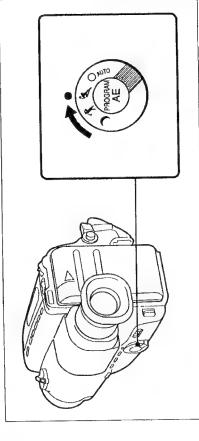
مبد

Using the PROGRAM AE Function

Set the mark of the desired mode to the lacktriangle mark above the PROGRAM AE dial.

Empleo de la función PROGRAM AE

Ajuste la marca del modo deseado a la marca 🌑 situada arriba del dial PROGRAM AE.



Sports mode

Outdoor sports scenes such as football, tennis,

Videofilmación de escenas de deportes de

Modo de deportes

A.C.

exteriores como riitbol, tenis, golf o esqui

Videofilmación de paísajes desde un

automóvil en marcha

golf or skiing A landscape in a moving car

* High-speed shutter mode

- · A golf swing or a tennis match in fine weather Playing back certain scenes with high-speed with the ball captured clearly

movements in clear, sharp picture

 Recording night views, neon signs or fireworks J Twilight mode

🛪 Modo de obturación a alta velocidad

 Reproducir ciertas escenas con movimientos a día claro con la pelota visualizada claramente . Un swing de golf o un partido de tênis en un gran velocidad en una imagen clara y nítida

→ Modo de crepúsculo

 Videofilmación de vistas nocturnas, letreros de neón o fuegos artificiales.

La velocidad de obturación en cada modo Nota sobre la velocidad de obturación Modo de deportes - entre 1/50 y 1/500 PROGRAME AE es el siguiente: The shutter speed in each PROGRAM AE mode is

Modo de obturación a alta velocidad - 1/4000

Sports mode - between 1/50 to 1/500 High-speed shutter mode - 1/4000

as follows:

Twilight mode - 1/50 AUTO mode - 1/50

Note on shutter speed

Modo de crepúsculo ~ 1/50 Modo AUTO = 1/50

Operaciones avanzadas

Scener ooting

en varias tomas cortas

automatically take a series of quick shots resulting video. With the 5 SEC (5-second recording) mode, Long, continuous shots of scenery tend to be dull, then switches to Standby mode, so that you will he camcorder records for about 5 seconds and and have to be edited to make an interesting in a lively video.

(1) Slide the START/STOP MODE switch to 5

(2) Turn STANDBY up and press START/STOP Recording starts. Five dots appears in the

The dots disappear at a rate of one per second. disappear, the camcorder switches to Standby When five seconds elapse and all the dots mode automatically.

ser aburrida y tendrá que editarse para obtener un vídeo interesante. Con el modo de videofilmación Una toma larga y continua de una escena tiende a de 5 segundos (5 SEC), la videocámara grabará durante unos 5 segundos y pasará al modo de automáticamente una serie de planos rápidos espera. De esta manera, usted podrá tomar resultando en un vídeo vívido.

(1) Deslice el selector START/STOP MODE hasta (2) Gire STANDBY hacia arriba y presione

START/STOP. La grabación comenzará. En el puntos desaparecerán y la videocámara pasará Los puntos desaparecerán a razón de uno por segundo. Después de 5 segundos, todos los automáticamente al modo de espera. visor aparecerán cinco puntos.

perimposing a Title

superimpose it on the picture during recording.

You can select from ten preset titles to

Each time you press TITLE, the preset titles

appear one by one.

imágenes durante la grabación. Cada vez que títulos memorizados y superponerlo sobre las Jsted podrá seleccionar un título entre diez presione TITLE, los títulos memorizados aparecerán uno por uno.

Para superponer desde el comienzo

(1) Gire el selector POWER hasta CAMERA.

(3) Press TITLE repeatedly until the desired title

appears. The title flashes.

(4) Press START/STOP to start recording.
(5) Press TITLE when you want to turn off the

To Superimpose from the Beginning

(1) Turn the POWER switch to CAMERA.

(2) Turn STANDBY up.

(2) Gire STANDBY hacia arriba.
(3) Presione repetidamente TITLE hasta que aparezca el título deseado. El título parpadeará.

(5) Presione TITLE cuando desee que el título (4) Presione START/STOP para iniciar la videofilmación. desaparezca.

Para superponer en medio de la videofilmación

(2) When the title stops flashing, press TITLE. The

(4) Press TITLE when you want to superimpose

(3) Press START/STOP to start recording.

title disappears.

START/STOP MODE

J} Siga

(5) Press TITLE when you want to turn off the

the title.

(1) Press TITLE repeatedly until the desired title

appears. The title flashes.

To Superimpose On the Way of

Recording

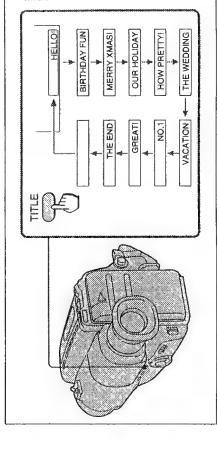
(1) Presione repetidamente TITLE hasta que aparezca el título deseado. El título parpadeará.

(2) Cuando el título deje de parpadear, presione TTTLE. El título desaparecerá

(3) Presione START/STOP para iniciar la videofilmación.

(4) Presione TITLE cuando desee superponer el

(5) Vuelva a presionar TITLE cuando desee que el título desaparezca. título.



You cannot select a title during recording. Note on selecting a title

El título no podrá seleccionarse durante la Nota sobre la selección del título grabación.

To Extend the Recording Time

seconds from the moment you press START/ Press START/STOP again before all the dots disappear. Recording continues for about 5

To Cancel 5-Second Recording

Slide the START/STOP MODE switch to 🚣 (normal recording). If you slide the switch while recording, recording continues.

Para prolongar el tiempo de videofilmación

REC

AEC 0000

STBY seese

ŧ

desaparezcan todos los puntos. La videofilmación continuará durante unos 5 segundos desde el Vuelva a presionar START/STOP antes de que momento en que presionó START/STOP.

Para cancelar la videofilmación de 5 segundos

Deslice el selector START/STOP MODE hasta 🚊 (videofilmación normal). Si desliza este selector durante la videofilmación, ésta continuará.

Operaciones avanzadas

You can record a 16:9 wide picture to watch on the 16:9 wide-screen TV (WIDE TV).

— CCD-TR510E only

Using the Wide Mode Function

IV [b] is horizontally compressed. You can watch the picture of normal images on a wide-screen TV [c]. The picture in the view finder [a] or on a normal Slide STEADY SHOT/WIDE TV to WIDE TV.

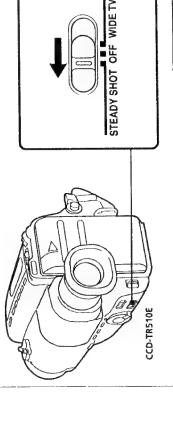
- CCD-TR510E solamente

modo panorámico

Deslice STEADY SHOT/WIDE TV hasta WIDE

La imagen del visor [a] o la de un televisor normal [b] se comprimirá horizontalmente. Usted podrá

Usted podrá grabar una imagen panorámica 16:9 para verla en un televisor panorámico 16:9 (WIDE TV).



The Steady Shot will not correct excessive Note on the Steady Shot

- camera-shake.
- · When you switch the Steady Shot on or off, the

function STEA

— CCD-TR510E only

You can use the Steady Shot to compensate for camera-shake. Do not use the Steady Shot when shooting a stationary object with a tripod.

Using the STEADY SHOT Function

Slide STEADY SHOT/WIDE TV to STEADY

Deslice STEADY SHOT/WIDE TV hasta STEADY SHOT.

Slide STEADY SHOT/WIDE TV to OFF. To Release the Steady Shot

exposure may fluctuate.

 When you select WIDE TV mode, the Steady Shot does not work.

Para desactivar el modo panorámico

Deslice STEADY SHOT/WIDE TV hasta OFF.

En el modo WIDE TV, la función STEADY

Notas sobre el modo panorámico

indicador de la fecha o la hora se ensanchará

en un televisor panorámico.

If you dub a tape, the tape is copied in the same

screen TV.

mode as the original recording.

When you record in WIDE TV mode, the date or time indicator will be widened on the wide-

In WIDE TV mode, the STEADY SHOT does

not work.

Notes on wide mode

Slide STEADY SHOT/WIDE TV to OFF.

To Release the Wide Mode

Cuando grabe en el modo WIDE TV, el

SHOT no funcionará.

Si duplica una cinta, ésta se copiará en el mismo modo que la grabación original.

- CCD-TR510E solamente

videofilme un objeto estacionario con un trípode videocámara. No emplee esta función cuando Usted podrá utilizar la función de filmación estable para compensar los sacudidos de la

Utilización de la función STEADY SHOT

La filmación estable no corregirá las sacudidas Nota sobre la filmación estable

Para desactivar la filmación estable Deslice STEADY SHOT/WIDE TV hasta OFF.

- Cuando active o desactive la filmación estable, excesivas de la videocámara
 - es posible que la exposición fluctúe.

 Cuando seleccione el modo WIDE TV, la filmación estable no funcionará.

Utilización de la función de

ver las imágenes normales en un televisor panorámico [c].

U STEADY SHOT OFF WIDE TV 2 CCD-TR510E

Cambio de los ajustes anging the Mode

You can change the mode settings to further enjoy (1) Slide the cover to the left. You will find the the features and functions.

Set the mode switches to the desired mode. mode switches.

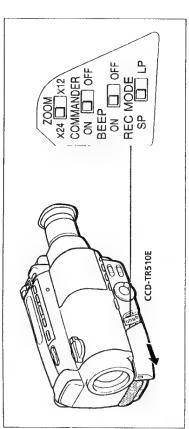
Close the cover.

(3) Cierre la cubierta.

disfrutar más de las funciones de la videocámara. Usted podrá cambiar los ajuste de modo para

 Deslice la cubierta hacia la izquierda. Encontrará los selectores de modo.

(2) Ponga los selectores de modo en la posición deseada.



Selecting the Mode Setting of Each Item

ZOOM <x24/x12> (CCD-TR510E only)

Set to x24 to activate digital zooming. Set to x12 otherwise. The zooming ability becomes x12.

COMMANDER <ON/OFF>

 Set to ON when using the supplied Remote The Remote Commanders are available on Commander* for the camcorder (For CCD-FR420E/TR440E/TR510E only). * For CCD-TR410E users:

Set to OFF when not using the Remote Commander for the camcorder.

option.

BEEP <ON/OFF>

Set to OFF to turn the beep sound off.

Set to ON to turn the beep sound on.

REC MODE <SP/LP>

Select SP to record a tape in SP (standard play)

Select LP to record a tape in LP (long play) mode.

Selección de los ajustes de modo en cada ítem

ZOOM <x24/x12> (CCD-TR510E solamente) Ajústelo a x24 para activar el zoom digital.

 De lo contrario, ajústelo a x12. El zoom pasará a 12 aumentos.

COMMANDER<ON/OFF>

videocámara ¡Para la CCD-TR420E/TR440E/ telemando suministrado* para controlar la Seleccione ON cuando desee emplear el TR510E solamente).

*Para los usuarios de la CCD-TR410E

Los telemandos están disponibles en opción Seleccione OFF cuando no vava a emplear el telemando para controlar la vieocámara.

BEEP<ON/OFF>

Seleccione OFF'si no desea oir el pitido. Selectione ON para oir el pitido.

REC MODE <SP/LP>

Seleccione SP para grabar la cinta en el modo SP (duración estándar).
 Seleccione LP para grabar la cinta en el modo LP (duración larga).

Editing onto Another

VHS, SIMS S-VHS, MISTER VHSC, SIMSTER S-VHSC, or 🖪 Betamax VCR that has video/audio inputs. You can create your own video programme by editing with any other \$8 mm, FII His, WS

After connecting the camcorder to the VCR,

record over) into the recording VCR. Then (2) Insert a blank tape (or a tape you want to (1) Turn the POWER switch to PLAYER.

(3) Play back the recorded tape on the camcorder insert your recorded tape into the camcorder. until you locate the point where you want to start editing. Then set the camcorder to playback pause mode.

(4) Set the recording VCR to recording pause

(5) Press II on the camcorder and VCR simultaneously to start editing. mode.

To Edit More Scenes

Repeat steps 3 to 5.

To Stop Editing

Press STOP on the camcorder and VCR.

Use of the EDITSEARCH button

playback pause. You can play back still pictures direction keep pressing EDITSFARCH during To play back a tape in the forward or reverse successively at specific intervals by pressing EDITSEARCH intermittently.

SWIS, VHSC WISTE, S-VHSC SWISTE o Betamax III editando con una videograbadora de formato de Usted podrá crear su propio programa de vídeo 8mm B, 8mm de Hi8 HiB, VHS WS, S-VHS

Después de conectar la videocámara a la

que disponga de entradas de vídeo/audio.

(1) Gire el selector POWER hasta PLAYER. videograbadora,

(2) Inserte un videocassette en blanco (o una cinta en la que desee realizar la regrabación) en la videograbadora y la cinta grabada en la videocámara.

desee comenzar la edición, y después ponga la videocámara hasta localizar el punto en el que videocámara en el modo de reproducción en (3) Reproduzca la cinta grabada en la

(4) Ponga la videograbadora en el modo de (5) Presione simultáneamente 11 de la grabación en pausa. pansa.

videocámara v la videograbadora para

comenzar la edición.

Para editar más escenas Repita los pasos 3 a 5.

Presione - STOP de la videocámara y la Para cesar la edición

Empleo de la tecla EDITSEARCH

videograbadora.

progresivo o regresivo, manteniendo presionada EDITSEARCH durante la reproducción en pausa. reproducir sucesivamente las imágenes fijas a Usted podrá reproducir una cinta en sentido Si la presiona en forma intermitente, podrá ciertos intervalos.

Cambio de los ajustes iging the Mode

You can change the mode settings to further enjoy (1) Slide the cover to the left. You will find the the features and functions

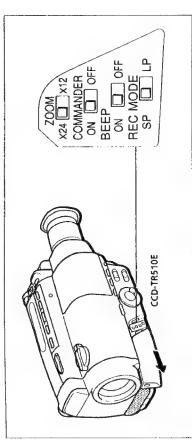
(2) Set the mode switches to the desired mode. (3) Close the cover.

(1) Deslice la cubierta hacia la izquierda.

(2) Ponga los selectores de modo en la posición Encontrará los selectores de modo.

(3) Cierre la cubierta.

disfrutar más de las funciones de la videocámara Usted podrá cambiar los ajuste de modo para



Selecting the Mode Setting of Each Item

ZOOM <x24/x12> (CCD-TR510E only)

- Set to x24 to activate digital zooming.
 Set to x12 otherwise. The zooming ability
 - becomes x12.

COMMANDER <ON/OFF>

- Set to O.N when using the supplied Remote Commander* for the camcorder (For CCD-IR420E/TR440E/TR510E onlv).
 - * For CCD-TR410E users:

The Remote Commanders are available on

Set to OFF when not using the Remote Commander for the camcorder. option.

BEEP <ON/OFF>

- Set to O.N to turn the beep sound on.
- Set to OFF to turn the beep sound off.

REC MODE <SP/LP>

- Select SP to record a tape in SP (standard play)
 - Select LP to record a tape in LP (long play)

Selección de los ajustes de modo en cada ítem

ZOOM <x24/x12> (CCD-TR510E solamente)

- Ajústelo a x24 para activar el zoom digital.
- De lo contrario, ajústelo a 112. El zoom pasará a 12 aumentos.

COMMANDER CON/OFF>

- telemando suministrado* para controlar la videocámara (Para la CCD-TR420E/TR440E/ Seleccione O.N cuando desee emplear el [R510E solamente).
- Selectione OFF cuando no vava a emplear el Los telemandos están disponibles en opción. telemando para controlar la vieocámara. *Para los usuarios de la CCD-TR410E

BEEP<ON/OFF>

- Seleccione ON para oir el pitido.
- Seleccione OFF si no desea oir el pitido.

REC MODE <SP/LP>

- Seleccione SP para grabar la cinta en el modo SP (duración estándar).
- Seleccione LP para grabar la cinta en ei modo LP (duración larga).

Edición en otra cinta ting onto Another

You can create your own video programme by editing with any other \$\mathbb{B}\$ mm, \(\mathbb{Hi} \mat or 🖪 Betamax VCR that has video/audio inputs.

- After connecting the camcorder to the VCR, (1) Turn the POWER switch to PLAYER.
- insert your recorded tape into the camcorder. record over) into the recording VCR. Then (2) Insert a blank tape (or a tape you want to
- (3) Play back the recorded tape on the camcorder until vou locate the point where you want to start editing. Then set the camcorder to playback pause mode.
 - (4) Set the recording VCR to recording pause
 - (5) Press II on the camcorder and VCR simultaneously to start editing.

To Edit More Scenes

Repeat steps 3 to 5.

To Stop Editing

Press STOP on the camcorder and VCR.

playback pause. You can play back still pictures direction keep pressing EDITSEARCH during To play back a tape in the forward or reverse successively at specific intervals by pressing Use of the EDITSEARCH button EDITSEARCH intermittently.

SWS, VHSC MSB, S-VHSC SWSB o Betamax IB editando con una videograbadora de formato de Usted podrá crear su propio programa de vídeo Smm B, 8mm de Hi8 HIB, VHS MS, S-VHS que disponga de entradas de video/audio.

Después de conectar la videocámara a la videograbadora,

- (2) Inserte un videocassette en blanco (o una cinta en la que desee realizar la regrabación) en la videograbadora y la cinta grabada en la (1) Gire el selector POWER hasta PLAYER.
- desee comenzar la edición, y después ponga la videocámara hasta localizar el punto en el que videocámara en el modo de reproducción en (3) Reproduzca la cinta grabada en la videocámara.
- (4) Ponga la videograbadora en el modo de grabación en pausa. pausa
 - videocámara y la videograbadora para (5) Presione simultáneamente 11 de la comenzar la edición.

Para editar más escenas Repita los pasos 3 a 5.

Presione 🔳 STOP de la videocámara y la Para cesar la edición

videograbadora.

EDITSEARCH durante la reproducción en pausa progresivo o regresivo, manteniendo presionada reproducir sucesivamente las imágenes fijas a Usted podrá reproducir una cinta en sentido Si la presiona en forma intermitente, podrá Empleo de la tecla EDITSEARCH

ciertos intervalos.

Información adicional Additional Information

020

CR2025 lithium battery. Use of another battery when you set the POWER switch to CAMERA. In about 1 year under normal operation. When the this case, replace the battery with the Sony battery installed. The lithium battery lasts for Your camcorder is supplied with the lithium flashes in the viewfinder for about 5 seconds battery becomes weak or dead, 🔄 indicator may present a risk of fire or explosion.

condiciones normales de funcionamiento. Cuando En esete caso, reemplace la pila por otra de litio En la videocámara se ha insertado en fábrica una la pila de litio se debilite o agote, el indicador 🟹 parpadeará en el visor durante unos 5 segundos cuando ponga el selector POWER en CAMERA. CR2025 Sony. El empleo de otra pila puede suponer un riesgo de incendio o explosión. aproximadamente 1 año si se utiliza en pila de litio. La pila de litio durará

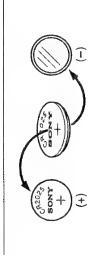


Note on Lithium Battery

and a negative (-) terminals as illustrated. Be sure to install the lithium battery so that terminals Note that the lithium battery has a positive (+) on the battery match the terminals on the camcorder.

Nota sobre la pila de litio

terminal positivo (-) v otro negativo (-) como se ilustra. Cerciórese de colocar la pila de litio de forma que fos terminales de la pila coincidan Fenga en cuenta que la pila de litío posee un con los de la videocámara.



WARNING

The battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.

Si trata mal la pila, puede explotar. No recargue, ADVERTENCIA

Mantenga la pila de litio fuera de alcance de los niños. Si alguien traga la pila, consulte inmediatamente a un médico. desarme, ni tire la pila al fuego. Precaución

Changing the Lithium Battery

Otherwise, you will need to reset the date and When replacing the lithium battery, keep the battery pack or other power source attached. time.

- (1) Slide the cover and align the mark of the cover (2) Push the battery in once and pull it out from to that of the body. Press down the cover.
 - the holder.
- (3) Install the lithium battery with the positive (+) side facing out.
 - body. Press the cover until it clicks and slide (4) Align the mark of the cover to that of the the cover.

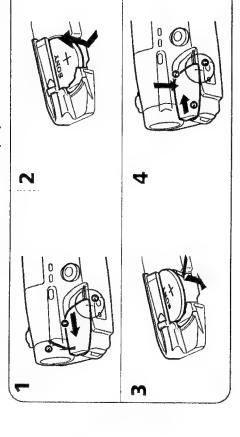
Reemplazo de la pila de litio

De lo contrario, deberá reajustar la fecha y la hora. Durante el reemplazo de la pila de litio, mantenga la batería u otra fuente de alimentación conectada. (1) Deslice la cubierta y alinee la marca de la

(2) Empuje la pila una vez y extráigala de su cubierta hacia abajo. compartimiento.

cubierta con la marca del cuerpo. Presione la

- (3) Coloque una pila de litio nueva con la cara positiva (+) hacia afuera.
- (4) Alinee la marca de la cubierta con la marca del cuerpo. Presione la cubierta hasta que chasquee y deslícela.



Uste de la l the Date

Reset the date and time using the DATE(+) and TIME(NEXT) buttons.

- (1) Turn the POWER switch to CAMERA.
 - (2) Turn STANDBY up.
 (3) Press DATE(+) and TIME(NEXT)

simultaneously until the year indicator flashes

(4) Set year, month, day, time, minute by pressing DATE(+) and TIME(NEXT). Note that when

you keep DATE(+) pressed, the digits advance in the viewfinder.

Reajuste la fecha y la hora utilizando las teclas DATE(+) y TIME(NEXT)

- IIME(NEXT) hasta que en el visor parpadee el (1) Gire el selector POWER hasta CAMERA. (2) Gire STANDBY hacia arriba. (2) Presione simultáneamente DATE(+) y indicador del año.
 - presionando DATE(+) y TIME(NEXT). Tenga DATE(+), los dígitos avanzarán con mayor (3) Ajuste el año, mes, día, hora y minutos en cuenta que si mantiene presionada rapidez

TIME(NEXT

m

0

4

automáticamente de acuerdo con el sistema de grabación (modo SP/LP) en el que se haya El modo de reproducción se seleccionará

according to the recording system (SP/LP mode)

in which the tape was recorded.

Foreign 8 mm video

The playback mode is selected automatically

You cannot play software recorded on a different TV colour systems. Because the TV colour systems

differ from country to country, you may not be able to play back foreign pre-recorded software. Refer to page 52 to check the TV colour system of

foreign countries

color difiere en cada país, es posible que no pueda Con respecto al sistema de televisión en color de software grabado en un sistema de televisión en color diferente. Como el sistema de televisión en Con esta videocámara no podrá reproducir un reproducir un software previamente grabado. Videocassette de 8 mm de otro sistema otros países, consulte la página 52. grabado la cinta.

This section shows you how you can get the most out of your battery pack.

Preparing the Battery Pack

THE STATE OF THE S

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Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned. **Always Carry Additional Batteries**

THE STATE OF THE S

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Battery Life is Shorter in Cold Environment

Meinex

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THE REPORT OF THE PARTY OF THE

7-30:00

0

Battery efficiency is decreased and the battery will be used up more quickly if you are recording in cold environment.

To Save Battery Power

down when not recording to save battery power. Turn the STANDBY switch on the camcorder [a] on page 42.

Para corregir los ajustes de la fecha y

Repita los pasos 3 a 4.

la hora

To Correct the Date and Time Setting

Repeat steps 3 and 4.

A smooth transition between scenes can be made While positioning the subject, selecting an angle, moves automatically and the battery is used. The battery is also used when a cassette is inserted or or looking through the view finder lens, the lens even if recording is stopped and started again. removed.

os para utiliza

En esta sección se explica la forma de obtener el máximo rendimiento de la batería.

Preparación de la batería

alimentar la videocámara el doble o el triple del Lleve siempre baterías adicionales Prepare suficientes baterías como para poder tiempo de filmación planeada.

La duración de la batería se acortará en climas fríos.

La eficacia de la batería disminuirá y se gastará con mayor rapidez si graba en climas fríos.

Para ahorrar batería

un ángulo, u observe a través del visor, el objetivo escenas. Mientras encuadre el motivo o seleccione hacia abajo cuando no vaya a videofilmar a fin de Aunque detenga v reinicie la filmación, obtendrá Gire el interruptor STANDBY de la videocámara batería. La batería también se utilizará al insertar una grabación sin transiciones bruscas entre las ahorrar batería. [a] de la página 42 o extraer un videocassette.

visualizar el indicador de la hora. Cuando vuelva Presione DATE de forma que el indicador de la fecha aparezca en el visor. Presione TIME para Para comprobar la fecha y la hora a presionar la misma tecla, el indicador se apagará. The year indicator changes as follows: indicator. When you press the same button again, Press DATE to display the date indicator in the viewfinder. Press TIME to display the time To Check the Date and Time

the indicator goes out.

.96, ---- 36,

El indicador del año cambiará como

96, → _ 36,

Tips for Using the Battery Pack

When to Replace the Battery

While you are using your camcorder in CAMERA mode, the remaining battery indicator decreases gradually as battery power is used up.

Cuándo reemplazar la batería

Consejos para utilizar la batería

modo CAMERA, el indicador de carga restante de la batería disminuirá gradualmente a medida que Mientras esté utilizando la videocámara en el se reduzca la carga de la batería.



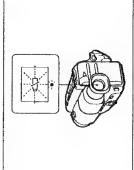
When the remaining battery indicator reaches the lowest point, the \(\pri\) indicator appears and starts flashing in the viewfinder. [b]

from slow flashing to rapid flashing while you are alkaline batteries. Leave the tape in the camcorder When the < indicator in the viewfinder changes recording, turn the POWER switch to OFF on the to obtain smooth transition between scenes after camcorder and replace the battery pack or the battery is replaced.

Cuando el indicador de carga restante de la batería llegue al punto mínimo, en el visor aparecerá el indicador 🖾 v comenzará a

videocassette en la videocámara para obtener una escenas después de haber reemplazado la batería. selector POWER de la videocámara hasta OFF v reemplace la batería o las pilas alcalinas. Deje el parpadeo lento a rápido mientras grabe, gire el Cuando el indicador ⇔ en el visor cambie de grabación sin transiciones bruscas entre las

parpadear. [b]



Nota sobre el indicador de carga restante de la batería Note on the remaining battery indicator

Es posible que este indicador de la videocámara suministrada). El indicador de la batería es más señale una capacidad restante diferente a la indicada por el indicador de la batería (no preciso.

that of the battery pack with the remaining battery

indicator (not supplied). The indicator of the

battery pack is more accurate.

The remaining battery indicator of the camcorder may indicate a different remaining capacity from

Notes on the Rechargeable **Battery Pack**

The Battery Heats Up

occurred inside the battery pack. This is not cause During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has for concern.

Battery Care

- after using the battery pack, and keep it in a cool place. When the battery pack is attached to the the camcorder even if the POWER switch is set camcorder, a small amount of current flows to Remove the battery pack from the camcorder to OFF, which shortens battery life.
- you should charge the battery right before using when it is not in use after charging. Therefore, The hattery pack is always discharging even the camcorder.

How to Use the Switch on the Battery

[c], you can use it to find whether the battery pack When the switch is supplied with the battry pack is charged or not. Set the switch to the "no mark" battery is used up (or in whichever direction you position when charging is completed. Set the switch to the "red mark" position when the want to remind yourself).

The Life of the Battery Pack

battery pack, the battery pack should be replaced turning on the camcorder with a fully charged If the ♥ indicator flashes rapidly just after with a new fully charged one.

Charging Temperature

You should charge batteries at temperatures from temperatures require a longer charging time. 10°C to 30°C (from 50°F to 86°F). Lower

Notas sobre la batería

La batería se calentará

cambio químico que se produce en el interior de la calentará. Esto se debe a la energía generada y al Durante la carga o la grabación, la batería se batería, y no significa problema alguno.

Cuidado de la batería

- Después de haber empleado la batería quítela de Mientras la batería esté fijada a la videocámara, incluso aunque el selector POWER esté en OFF. la videocámara y guárdela en un lugar fresco. circulará una pequeña cantidad de corriente
- La batería estará siempre descargándose, incluso aunque no se utilice. Por lo tanto, se recomienda Esto acortará la duración útil de la batería. cargarla antes de emplear la videocámara.

Utilización del señalador de la batería utilizarlo para saber si la batería está cargada o no Si la batería posee un señalador [c], usted podrá

Ponga el selector en la posición "sin marca"

sentido que desee y pueda recordar usted mismo) Póngalo en la posición de la "marca roja" cuando la batería esté descargada completamente (o en el cuando finalice la carga.

Vida útil de la batería

Si el indicador 🗘 parpadea rápidamente después cargada, habrá que reemplazarla por otra nueva videocámara con una batería completamente de haber conectado la alimentación de la completamente cargada.

Temperatura durante la carga

Cargue la batería a una temperatura comprendida entre 10 y 30°C. A bajas temperaturas, la carga tardará más en realizarse.



42

e

lips for Using the Battery Pack

Notes on Charging

A Brand-new Battery

A brand-new battery pack is not charged. Before using the battery pack, charge it completely.

Before Recharging a Used Battery

- Make sure to use up the battery before recharging.
- If recording is completed before the t\u00e4 indicator appears in the viewfinder, you should remove the tape, turn the POWER switch to CAMERA, turn STANDBY up, and leave the camcorder until the C indicator flashes rapidly.
 - When you use the AC-510 power adaptor, you can use the discharging function.
- lowering of battery capacity. Battery capacity can be recovered if you fully discharge and Charging the usable battery causes a charge the battery again.

After Long Storage

not used for a long time (about 1 year), it becomes Recharge the battery pack after a long period of storage. If the battery pack is charged fully but discharged. Charge it again, but in this case the battery life will be shorter than normal. After several charging and discharging cycles, the battery life will recover its original capacity.

Notes on the Terminals

If the terminals (metal parts on the back) are not repeat installing and removing the battery pack. This improves the contact condition. Also, wipe the + and - terminals with a soft cloth or paper. battery pack has not been used for a long time, When the terminals are not clean or when the clean, the battery duration will be shortened.

Be Sure to Observe the Following

- necklace to touch the battery terminals. Carry circuit, do not allow metal objects such as a the battery pack attaching to the terminal To prevent an accident caused by a short cover. [d] on page 43.
 - Keep the battery pack away from fire.
 - Keep the battery pack dry.
- Do not open nor convert the battery pack.

Do not expose the battery pack to any mechanical shock

Notas sobre la carga

Consejos para utilizar la bateria

Baterías nuevas

Una batería nues a no estará cargada. Antes de utilizarla, cárguela completamente.

Antes de recargar baterías usadas

- Asegúrese de utilizar completamente la batería
- CAMERA, gire STANDBY hacia arriba y deje la antes de cargarla. Si finaliza la filmación antes de que en el visor videocassette, gire el selector POWER hasta videocámara hasta que el indicador con aparezca el indicador CD, extraiga el
 - parpadee rápidamente. Cuando utilice el adaptador de alimentación de CA AC-S10, podrá emplear la función de descarga.
- Si carga una bateria sin descargar hará que la capacidad de la batería podrá recuperarse si capacidad de la misma disminuya. La vuelve a descargar y cargarla completamente.

Después de no haber utilizado una

este caso su duración será más corta de lo normal. mucho tiempo (aproximadamente 1 año), ésta se Después de varios ciclos de carga y descarga, la utilizado durante mucho tiempo. Si una batería descargará. Vuelva a cargar la batería, pero en cargada completamente no se utíliza durante Recargue la hatería después de no haberla batería durante mucho tiempo bateria recuperará su capacidad original.

Notas sobre los terminales

Cuando los terminales no estén limpios o no haya utilizado la batería durante mucho tíempo, fije y contacto. Además, frote los terminales + y - con quite la batería repetidamente. Esto mejorará el Si los terminales (partes metálicas de la parte posterior) no están limpios, la duración de la un paño o un papel suave. batería se acortará.

Wipe off the liquid in the battery case carefully

If battery leakage occurred

If you touch the liquid, wash it off with water.

before replacing the batteries.

with a lot of water and then consult a doctor.

Tenga en cuenta lo siguiente

- batería, fijele la cubierta de terminales. [d] a cortocircuito, no deje que objetos metálicos como un coliar entren en contacto con los terminales de la bateria. Cuando lleve la Para prevenir accidentes debido a un la página 43.
 - Mantenga la batería alejada del fuego
 - No abra ni desarme la batería. Mantenga seca la batería.
- No la someta a ninguna clase de golpes.

Votas sobre la caja de pilas Notes on the Battery Case

podrá emplearla con pilas de manganeso ni Utilicela solamente con pilas alcalinas. No baterías de NiCd de tamaño AA. Use only with alkaline batteries. You cannot batteries or size AA rechargeable NiCd

use the battery case with manganese

- La duración de las pilas se acortará en climas Es aconsejable que la utilice con pilas alcalinas Sonv.
 - Mantenga limpia la parte metálica. Si se ensucia, frótela con un paño suave. frios (inferiores a 10 °C).
- No exponga la caja de pilas a ninguna clase de No desarme ni convierta la caja de pilas.

Do not disassemble or convert the battery case.

Do not expose the battery case to any

mechanical shock.

Prevent the electrode in the battery case from

This is not cause for concern.

coming in contact with a metal object. time, detach the battery case from the

During recording, the battery case heats up.

camcorder and remove the batteries from the

If you will not use the battery case for a long

Keep the metal part clean. If it gets dirty, wipe

it with a soft cloth.

Battery life is remarkably shorter in a cold

environment (lower than 10 °C/50 °F).

Using with Sony alkaline batteries is

preferable. batteries.

- calentará. Esto no es motivo de preocupación. Evite que el electrodo de la caja de pilas entre Durante la videofilmación, la caja de pilas se
 - mucho tiempo, quítela de la videocámara y Si no va a utilizar la caja de pilas durante en contacto con un objeto metálico. extraiga las pilas de la misma.

Notas sobre las pilas alcalinas

derrame del electrólito de las pilas o la corrosión Para evitar el posible daño que podría causar el tenga en cuenta lo siguiente. To avoid possible damage from battery leakage or

Asegúrese de insertar las pilas en el sentido

Be sure to insert the batteries in the correct

Notes on Alkaline Batteries corrosion, observe the following. Do not use a combination of new and old

Alkaline batteries are not rechargeable.

- Las pilas alcalinas no pueden recargarse.
- No utilice una combinación de pilas nuevas v usadas.
 - Las pilas se descargan lentamente cuando no No emplee pilas de tipos diferentes.
- se utilizan.

The batteries slowly discharge while not in

Do not use a battery that is leaking.

use.

Do not use different types of batteries.

batteries.

No utilice una pila con derrame de su electrólito.

Si se produce un derrame del electrólito de las pilas

- Limpie cuidadosamente el líquido de la caja de pilas antes de reemplazar las pilas.
 - Si tocara el líquido, lávese con agua. If the liquid get into your eyes, wash your eyes
- · Si el líquido penetra en sus ojos, lave sus ojos con mucha agua y consulte a un médico.

27.

intenance Information Información sobre el mantenimiento y precauciones

Moisture Condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. If this happens, the tape may stick to the head drum and be damaged or the camcorder may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. However, take the following precautions.

Inside the Camcorder

If there is moisture inside the camcorder, the beep sounds and ⑤ indicator or the DEW lamp flash. If this happens, none of the function except cassette ejection will work. Open the cassette, and leave it about 1 hour. When ♠ indicator flashes at the same time, the cassette, is inserted in the cancorder. Eject the cassette, turn off the cancorder, and leave also the cassette about 1 hour.

Condensación de humedad

Si traslada directamente la videocámara de un lugar frio a otro cálido, es posible que se condense humedad en su interior, en la superficie de la cinta, o en el objetivo. En tales condiciones, la cinta puede adherirse al tambor de cabezas y estropearse, o la videocámara puede no funcionar adecuadamente. Para evitar la posibilidad de daños en estas circunstancias, la videocámara dispone de sensores de humedad. Sin embargo, tenga en cuenta las precauciones siguientes.

En el interior de la videocámara

En el invertor de la videocamara

Si se condensa humedad en el interior de la
videocámara, sonará un pitido y parpadeará el
indicador € o la lámpara DEW. En tal caso, no
trabajará ninguna función excepto la de expulsión
del videocassette. Abra el compartimiento del
videocassette, desconecte la alimentación de la
videocámara, y déjela durante aproximadamente
1 hora. Curando el indicador ♣ parpadee el
mismo tiempo, habrá un videocassette insertado
en la videocamara. Extraiga el videocassette,
desconecte la alimentación de la videocassette,
deje tanbién el videocassette durante
aproximadamente 1 hora.

On the Lens

No indicator will appear, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

How to Prevent Moisture Condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

- period of time.

 (1) Be sure to tightly seal the plastic bag containing the camcorder.
- Containing the Cantechaers

 (2) Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

En el objetivo

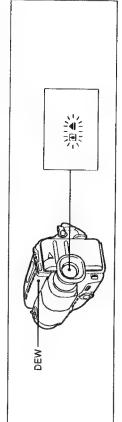
No aparecerá ningún indicador, pero la imagen se volverá borrosa. Desconecte la alimentación y no utilice la videocámara durante aproximadamente 1 hora.

Cómo prevenir la condensación de humedad

Cuando traslade la videocámara de un lugar frío a otro cálido, coloque la videocámara en una bolsa de plástico y deje que se adapte a las condiciones ambientales de la habitación durante cierto tiempo.

(1) No se olvide de cerera firmemente la bolsa de el factor de su descripto de consegua a videocámara.

(2) Saque la videocámara.
(2) Saque la videocámara de la bolsa cuando la temperatura del aire del interior de la bolsa haya alcanzado la ambiental (después de l hora aproximadamente).



mantenimiento y precauciones Information and

aintenance

Video Head Cleaning

To ensure clear pictures, clean the video heads. When Stappears in the viewfinder in CAMERA mode or playback pictures are "noisy" or hardly visible, the video heads may be contaminated.

Limpieza de las cabezas de vídeo

Para asegurar imágenes claras, limpie las cabezas sean "ruidosas" o dificiles de ver, es posible que de vídeo. Cuando en el visor aparezca 😵 en el modo CAMERA o las imágenes reproducidas las cabezas de vídeo estén contaminadas.





Slight contamination

[a] Contaminación ligera [b] Contaminación crítica

limpieza, si las imagenes siguen "ruidosas", repita cabezas de vídeo con un cassette de limpieza V8-25CLH Sony (no suministrado). Después de la Cuando aparezcan estas imágenes, limpie las la limpieza. (No repita la limpieza más de 5 (.eces.)

repeat the cleaning. (Do not repeat cleaning more

than 5 times.) Caution

Sony V8-25CLH cleaning cassette (not supplied). If this happens, clean the video heads with the

Critical contamination

<u>a</u> <u>a</u>

After checking the picture, if it is still "noisy",

Precaución

Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

No utilice cassettes de limpieza de tipo húmedo adquiribles en tiendas del ramo, ya que podrían dañar las cabezas de vídeo.

Nota

If the V8-25CLH cleaning cassette is not available in your area, consult your nearest Sony dealer.

disponible en su zona, consulte a un centro de Si el cassette de limpieza V8-25CLH no está servicios Sony.

Removing Dust from inside the Viewfinder

Para quitar el polvo del interior

del visor

supplied). Then, while sliding the RELEASE knob, turn the eyecup in the direction of the (1) Remove the screw with a screwdriver (not (2) Clean the surface with a commercially arrow and pull it out.

available blower.

suministrado). Después, gire el ocular en el (1) Quite el tornillo con un destornillador (no sentido de la flecha mientras mantenga deslizado el mando RELEASE y tire del (2) Limpie la superficie con un soplador disponible en tiendas del ramo. ocular.

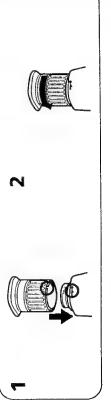
(1) Align the groove on th eyecup with the To Reattach the Eyecup

(2) Turn the eyecup in the direction of the arrow. Then, replace the screw. mark on the barrel

(1) Alinee la ranura del ocular con la marca • del Para volver a colocar el ocular tubo.

Información adicional

(2) Gire el ocular en el sentido de la flecha. Después vuelva a colocar el tomillo.



THE THE STATE OF T

mantenimiento y precauciones Información sobre el Information and menance

Precautions

Camcorder Operation

- Operate the camcorder using 6.0 V (battery
 - For DC or AC operation, use only the pack), or 7.5 V (AC power adaptor).
- Should any solid object or liquid fall into the checked by your nearest Sony dealer before casing, unplug the camcorder and have it accessories recommended in this manual. operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
 - Keep the POWER switch set to OFF when not using the camera.
- Keep the camcorder away from strong magnetic Do not wrap up the camcorder and operate it since heat may build up internally.

On Handling Tapes

fields or mechanical vibration.

the type, thickness of tape, or if the tab is out or in. Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense

Camcorder Care

- operate the camera and plaver sections and play When the camcorder is not to be used for a long time, disconnect the power source and remove the cassette. Periodically turn on the power, back a tape for about 3 minutes.
 - Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove
- Clean the camcorder body with a soft dry cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish. them with a soft cloth.

Precauciones

Operación de la videocámara

- Alimente la videocámara con 6,0 V (batería) o Para alimentarla con CC o CA, utilice sólo los 7,5 V (adaptador de alimentación de CA).
- sólido o líquido, desenchufe la videocámara v haga que sea revisada por su proveedor Sony Si dentro de la videocámara cae algún objeto accesorios recomendados en este manual. más cercano antes de reutilizarla.
 - Evite tratos bruscos o golpes. Tenga especial cuidado con el objetivo.
- No utilice la videocámara envuelta, porque se Cuando no vava a utilizar la videocámara, ponga el selector POWER en OFF.

Do not operate the unit with a damaged cord or

Never pull the cord itself.

Do not bend the AC power cord (mains lead)

if the unit has been dropped or damaged.

forcibly, or put a heavy object on it. This will

damage the cord and may cause a fire or an

electrical shock.

when not in use for a long time. To disconnect

· Unplug the unit from the wall (mains) outlet the cord (mains lead), pull it out by the plug.

> magnéticos intensos y vibraciones mecánicas Mantenga la videocámara alejada de campos recalentaría.

Cuidado del videocassette

Be sure that nothing metallic comes into contact

with the metal parts of the connecting plate. If

this happens, a short may occur and the unit

Always keep the metal contacts clean.

may be damaged.

Do not disassemble the unit.

parte posterior del videocassette. Estos orificios se utilizan para detectar el tipo de cinta, su grosor, o No inserte nada en los pequeños orificios de la si la lengüeta está o no deslizada.

Cuidados de la videocámara

alimentación y extraiga el videocassette. Conecte las secciones de la videocámara y el reproductor periódicamente la alimentación, haga funcionar v reproduzca una cinta durante unos 3 minutos. durante mucho tiempo, desconecte la fuente de Cuando no vava a utilizar la videocámara

- suave. Elimine las huellas dactilares con un Limpie el polvo del objetivo con un cepillo paño suave.
- · Limpie el cuerpo de la videocámara con un paño suave v seco, o ligeramente humedecido en una No emplee ningún tipo de disolvente va que solución muy diluida de detergente.

podría dañar la terminación.

AC Power Adaptor Charging

Adaptador de alimentación de CA

Empléelo solamente para cargar la batería

especificada. Este adaptador no podrá

- Lee only for the specified battery pack. This unit cannot be used to charge a lithium ion type
- Fije firmemente la bateria.

Charge the battery pack on a flat surface

without vibration.

Attach the battery pack firmly.

emplearse para cargar una batería de tipo iones

 Cargue la batería sobre una superficie plana sin vibraciones.

- mucho tiempo, desenchúfela de la toma de la red. Para desconectar el cable de alimentación (de la red), tire del enchufe. No tire nunca del · Cuando no vaya a utilizar la unidad durante propio cable.
- que podría dañar el cable y provocar incendios o CA (red), ni coloque objetos pesados sobre él, ya No doble a la fuerza el cable de alimentación de después de haberla dejado caer, o cuando esté No emplee la unidad con el cable dañado, dañada.
 - Cerciórese de que ningún objeto metálico entre en contacto con las partes metálicas de la placa conectora, va que se podría producir un cortocircuito que dañaría la unidad descargas eléctricas.
 - Mantenga siempre limpios los contactos metálicos.

Do not apply mechanical shock or drop the unit.

charging, keep it away from AM receivers and

While the unit is in use, particularly during

video equipment because it will disturb AM

reception and video operation.

The unit becomes warm while in use. This is

Do not place the unit in locations that are:

- Extremely hot or cold

 Dusty or dirty Very humid - Vibrating

- No desarme la unidad.
- No golpee ni deje caer la unidad.
- alejada de receptores de AM y equipos de vídeo especialmente durante la carga, manténgala porque perturbaría la recepción de AM y la Cuando esté empleando la unidad,
- La unidad se calentará durante el empleo. Pero operación de vídeo. esto es normal.
 - Extremadamente cálidos o frios No coloque la unidad en lugares:
 - Polvorientos o sucios

does not cover replacement or repair of parts or

damage due to use of Ni-MH batteries.

The warranty that comes with your camcorder

- Sujetos a vibraciones - Muy húmedos

If any difficulty should arise, unplug the unit and

contact your nearest Sony dealer

partes o los daños debido al uso de baterías de Ni-La garantía que se suministra con la videocámara no cubre el reemplazo ni las reparaciones de

Si surge alguna dificultad, desenchufe la unidad y póngase en contacto con su proveedor Sony.

Utilización de la videocámara ing Your Camcorder

Each country has its own electricity and TV colour systems. Before using your camcorder abroad, check the following points:

Power Sources

page

Corrective Actions

Cause ١

The POWER lamp does

not light.

AC power

Symptom

AC Power Adaptor

After about one minute, try again. Set the selector to VTR (DC OUT)

See the following chart.

When the CHARGE Lamp Flashes

The CHARGE lamp

flashes.

Check through the following chart.

and disconnect the mains lead.

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60 Hz.

Difference in Colour Systems

This camcorder is a PAL system-based camcorder. If you want to view the playback picture on a TV, system-based TV with PAL-SECAM transcoder. it must be a PAL system based TV or a SECAM Check the following alphabetical list.

PAL system countries

Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Australia, Austria, Belgium, China, Denmark, Switzerland, Thailand, etc.

PAL M system country

Argentina, Paraguay, Uruguay PAL N system countries

Japan, Korea, Mexico, Peru, Surinam, Taiwan, the America, Chile, Colombia, Ecuador, Jamaica, Bahama Islands, Bolivia, Canada, Central Philippines, the U.S.A., Venezuela, etc. NTSC system countries

SECAM system countries

* If you use a battery pack which you have just bought or which has been left unused for a long time, the CHARGE lamp may flash at the first charging. But this is not a problem. Repeat again to charge with

the same battery pack.

Please contact your nearest Sony dealer.

The problem is with the AC power

adaptor.

The CHARGE lamp flashes.

Hungary, Iran, Iraq, Monaco, Poland, Russia, Bulgaria, Czech Republic, France, Guyana, Slovak Republic, Ukraine, etc.

eléctrico y sistema de televisión en color. Antes de utilizar su videocámara en el extranjero, venfique Cada país posee su propio sistema de suministro en el extranjero los puntos siguientes:

Fuentes de alimentación

en cualquier país donde la tensión de la red sea de adaptador de alimentación de CA suministrado Usted podrá utilizar su videocámara con el 110 a 240 V CA, 50/60 Hz.

Diferencia en los sistemas de color

Esta videocámara está basada en el sistema PAL televisor, éste deberá estar basado en el sistema PAL o el sistema SECAM con transcodificador PAL-SECAM. Compruebe la lista siguiente en Si desea ver la imagen reproducida en un orden alfabético.

Países con el sistema PAL

Noruega, Nueva Zelanda, Portugal, Singapur, Holanda, Hong Kong, Italia, Kuwait, Malasia, Alemania, Australia, Austria, Bélgica, China, Dinamarca, España, Finlandia, Gran Bretaña, Suecia, Suiza, Tailandia, etc.

País con el sistema PAL M

Países con el sistema PAL N Brasil

Argentina, Paraguay, Uruguay

Bolivia, Canadá, Centroamérica, Colombia, Corea, Chile, Ecuador, EE.UU., Filipinas, Islas Bahamas, Jamaica, Japón, México, Perú, Surinam, Taiwan, Países con el sistema NTSC venezuela, etc.

Bulgaria, Francia, Guavana, Hungría, Irán, Iraq, Mónaco, Polonia, República de Checo, República de Eslovaquia, Rusia, Ucrania, etc. Países con el sistema SECAM

Additional Information

It the CHARGE lamp lights up and goes out after a while, the battery pack

If the CHARGE lamp flashes again, install another battery

Install the same battery pack again.

Remove the battery pack from

the AC power adaptor.

is operating correctly.*

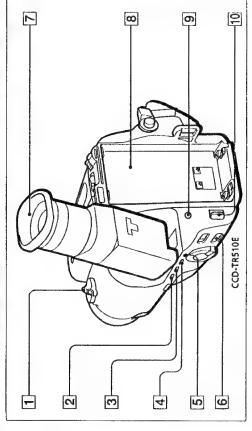
Información adicional

If the CHARGE lamp goes out after a while, the problem is with the battery pack firstly installed.

The CHARGE lamp lights up.

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Identificación o dentificación o dentifying the Parts



- 1. POWER switch (p.12, 22)
- 2 DATE(+) button (p.28, 40)
- 3 TIME(NEXT) button (p.28, 40)
- 4 TITLE button (p.33)
- G COUNTER RESET button (p.14)
- STEADY SHOT/WIDE TV mode switch (p. 33, 34, 35)
 For CCD-TR510E only
- Z Eyecup (p.17, 49)
- 8 Battery mounting surface (p.10)

GLANC & control jack

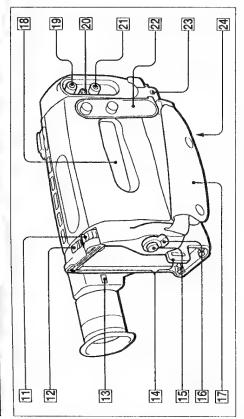
Connect the LANC & connecting cable to a wired remote control unit such as an editing controller. In this case, set the COMMANDER mode to OFF (p. 36). & stands for Local Application Control Bus system. The & control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the connectors indicated as CONTROL L or REMOTE.

10 BATT (battery) release knob (p.10)

- 1 Selector de alimentación (POWER) (pág.12, 22)
 - 2: Tecla de ajuste de la fecha [DATE(+)] (pág.28, 40)
- ③ Tecla de ajuste de la hora [TIME(NEXT)] (pág.28, 40)
 - 4 Tecla del título (TITLE) (pág.33)
 5 Tecla de puesta a cero del contador (COUNTER RESET) (pág.14)
- © Conmutador de modo de filmación estable/ televisor panorámico (STEADY SHOT/WIDE TV) (pág.34, 35) Para la CCD-TR510E solamente
 - 7 Ocular (pág.17, 49)
- B Superficie de montaje de la batería (pág.10)
 Toma de control remoto (LANC ♥)

Conecte un cable conector LAXC & a una unidad de control remoto alámbrico como un controlador de edición. En este caso, ajuste el modo de COMMANDER a OFF (pág., 36) & significa sistema de control de bus de aplicación local. La toma & se emplea para controlar el movimiento de la cinta de equipos de vídeo y dispositivos periféricos conectados a la misma. Esta toma posee la misma función que los conectores indicados como CONTROL C o REMOTE.

Mando de expulsión de la bateria (BATT) (pág.10)



- 11 Power zoom lever (p.16)
- 12 EJECT knob (p.11)
- 13 Eyecup release knob (p.49)
- 14 Hooks for shoulder strap (p.64)
- 15 START/STOP button (p.12, 13)
 - 16 STANDBY switch (p.12, 13)
- 17 Grip strap (p.17)
- 18 Cassette compartment (p.11)
- 20 RFU DC OUT (RFU adaptor DC out) jack 19 VIDEO OUT jack (p.20)
- 21 AUDIO OUT jack (p.20)
- 22 Jack cover
- Connect an optional external microphone. This jack also accepts a "plug-in-power" 23 MtC (microphone) jack

microphone.

When attaching a non-Sony tripod, make sure that the length of the camera mounting screw is shorter than 6.5 mm (9/32 inches). Attach a tripod (not supplied) here. 24 Tripod receptacle (p.18)

Otherwise, the screw might damage the inner

- Palanca del zoom motorizado (pág.16) Tecla de expulsión del videocassette
- Mando de liberación del ocular (pág.49) (EJECT) (pág.11)
 - Tecla de inicio/parada (START/STOP) 14 Ganchos para la bandolera (pág.64) 15 Tecla de inicio/parada (START/STOP)
 - Interruptor de espera (STANDBY) (pág.12, 13) 19
 - (pág.12, 13)
- Correa de la empuñadura (pág.17)
- Compartimiento del videocassette (pág. 11) Toma de salida de vídeo (VIDEO OUT)
- Toma de salida de CC para el adaptador de RFU (RFU DC OUT) (pág.20) [2]
 - Toma de salida de audio (AUDIO OUT) (pág.20) [2]
- Cubierta de tomas 22
- Conecte un micrófono externo opcional. Esta toma también acepta un micrófono "alimentado a través de la clavija". 23 Toma para micrófono (MIC)
- Sony, asegúrese de que la longitud del tornillo de montaje de la cámara sea inferior a 6,5 mm. Cuando utilice un trípode no fabricado por De lo contrario, el tornillo puede dañar la Receptáculo para tripode (pág.18) Fije un trípode (no suministrado) parte interna de la videocámara. 24

- 8 8 35 ဗ္ဗ 37 8 8 32 CCD-TR510E #AUSE STOP REWISS—PLAY—EFF 5 8 8 8 8 27
- Tape transport buttons (p.22, 23)

- ★ REW (rewind)
- ► PLAY (playback) II PAUSE
- These buttons will function in PLAYER mode.
- EDITSEARCH button (p.19) 9

27 Lens cover

- 28. Built-in microphone
- 29 Remote sensor (p.67)
- 30 Camera recording/battery lamp
- 31 DEW lamp (p.46)
- ② Viewfinder adjustment ring (p.13) 33 Viewfinder (p.13, 49, 69)
- 24 BACK LIGHT button (p.29)
- S START/STOP MODE switch (p.14, 32)
- 37 Mode switches (p.36)

36 PROGRAM AE dial (p.31)

38 Lithium battery compartment (p.39)

- 🟂 Teclas de transporte de la cinta (pág.22, 23)
 - ★ REW (rebobinado) ■ STOP(parada)
- ► PLAY (reproducción) ► FF (avance rápido) II PAUSE (pausa)
- Estas teclas funcionarán en el modo PLAYER.
 - 26 Tecla de búsqueda para edición
 - (EDITSEARCH) (pág.19) 27 Cubierta del objetivo
- 28 Micrófono incorporado
- 29 Sensor remoto (pág.67)
- 💯 Lámpara indicadora de videofilmación/ estado de la batería
 - 31: Lámpara de humedad (DEW) (pág.46)
 - 32 Anillo de ajuste de la lente del visor (pág.13)

- 33 Visor (pág.13, 49, 69)
- 巫 Tecla de videofilmación a contraluz (BACK LIGHT) (pág.29)
 - 35 Selector de modo de inicio/parada de la videofilmación (START/STOP MODE) (pág.14, 32)
- 36 Dial de exposición automática programada (PROGRAM AE) (pág.31)
- 37 Selectores de modo (pág.36)
- 38 Compartimiento de la pila de litio (pág.39)

63

part of the camcorder.

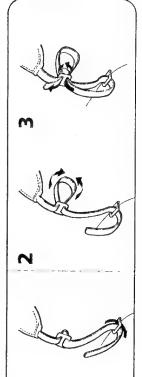
2 Teclas de transporte de la cinta (pág.22, 23)

dentifying the Parts

Identificación de las partes

Attach the supplied shoulder strap to the hooks for the shoulder strap (14 on page 62). Attaching the shoulder strap

Fijación de la bandolera Fije la bandolera suministrada a los ganchos para la misma (14 de la página 62).



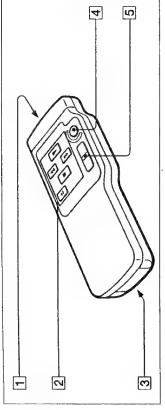
Remote Commander

— For CCD-TR420E/TR440E/TR510E only
The buttons that have the same name on the
Remote Commander and on the camcorder function identically.

— Para la CCD-TR420E/TR440E/TR510E Telemando

solamente

Las teclas del telemando con el mismo nombre que las de la videocámara poseen idéntica función.



1 Transmitter

Point toward the remote sensor to control the camcorder after turning on the POWER switch on the camcorder.

2 Tape transport buttons (p.22, 23)

3 R6 (size AA) battery holder (p.66)

4 START/STOP button

The zooming speed is unchangeable on the Remote Commander. 5 Power zoom button

1 Transmisor

telemando, gire el selector POWER de la vídeocámara y apunte este transmisor hacia el Para controlar la videocámara con el sensor remoto.

3 Compartimiento de las pilas R6 (tamaño 4 Tecla de inicio/parada (START/STOP) AA) (pág.66)

La velocidad del zoom no podrá cambiarse en 5 Tecla del zoom motorizado el telemando.

Identificación de las partes Identifying the Parts

Preparing the Remote Commander

To use the Remote Commander, you must insert two R6 (size AA) batteries. Use the supplied R6 (size AA) batteries.

(1) Remove the battery cover from the Remote Commander.

(2) Insert both of the R6 (size AA) batteries with (3) Put the battery cover back onto the Remote correct polarity.

Commander.

Preparación del telemando

pilas R6 (tamaño AA). Utilice las pilas R6 (tamaño Para utilizar el telemando, deberá colocar dos AA) suministradas.

Quite la tapa del compartimiento de las pilas

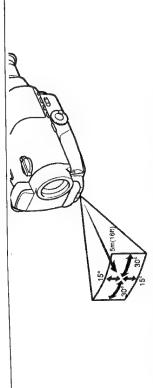
(2) Inserte las dos pilas R6 (tamaño AA) con la en el telemando.

polaridad correcta.

(3) Cierre la tapa.

Remote Control Direction

Aim the Remote Commander to the remote sensor within the range as shown below.



Notes on the Remote Commander

you use another Sony VCR at commander mode commander mode or cover the remote sensor of The commander modes (1, 2, and 3) are used VCRs to avoid remote control misoperation. If to distinguish this camcorder from other Sony VTR 2, we recommend you change the

Cuando no vava a utilizar el telemando durante

Remove the batteries when you will not use the

Remote Commander for a long time.

To avoid damage from possible battery

leakage

Commander does not work.

mucho tiempe, extraiga las pilas.

Para evitar el daño que podría causar el

derrame del electrólito de las pilas

Cerciórese de ajustar el modo COMMANDER a

Make sure that the COMMANDER mode is set to

Using the Remote Commander

Para emplear el telemando

Notas sobre el telemando

 Asegúrese de que no haya ningún obstáculo • Mantenga el sensor remoto alejado de luces intensas, como la directa del sol u otras de telemando no funcionará adecuadamente. Iluminación intensa. De lo contrario, el

modo de mando VTR 2. El modo de mando (1, 2 y 3) se utiliza para distinguir esta videocámara de otras videograbadoras Sony para evitar una videograbadora Sony en el modo de mando sensor remoto de la videograbadora con un Esta videocámara funciona con señales del VTR 2, se recomienda cambiarlo o cubrir el entre el telemando y el sensor remoto. operación errónea. Si utiliza otra

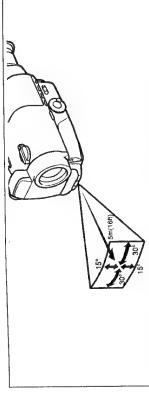
Apunte con el telemando hacia el sensor remoto

Área controlable mediante el

telemando

dentro de la gama que se muestra en la

ilustración.



 Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.

 This camcorder works at commander mode VTR Be sure that there is no obstacle between the remote sensor and the Remote Commander.

Las pilas en el telemando durarán unos 6 meses

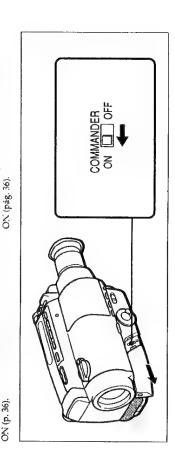
Nota sobre la duración de las pilas

en condiciones normales de funcionamiento.

Cuando las pilas se debiliten o agoten, el

telemando no funcionará.

the VCR with black paper.



99

about 6 months under normal operation. When the batteries become weak or dead, the Remote

The batteries for the Remote Commander last

Note on battery life

dentifying the Parts

To Watch the Demonstration

You can watch a brief demonstration of pictures If the demonstration appears when you turn on the camcorder for the first time, exit the Demo with titles.

To enter Demo mode

mode to use your camcorder.

(1) Eject the cassette and turn the POWER switch

POWER switch to CAMERA. Demonstration starts. The demonstration stops when you (2) Turn STANDBY up.
(3) While holding down ▶ PLAY, turn the insert the cassette.

abajo, gire el selector POWER hasta CAMERA.

(2) Gire STANDBY hacia arriba. (3) Manteniendo presionada ▶ PLAY hacia

(1) Expulse el videocassette y gire el selector

POWER hasta OFF.

Para entrar en el modo de demostración

La demostración comenzará y cesará cuando

Fenga en cuenta que una vez que haya entrado en

inserte un videocassette.

automáticamente después de 10 minutos cada vez

que gire el selector POWER hasta CAMERA, o

después de expulsar el videocassette.

Para salir del modo de demostración (1) Gire el selector POWER hasta OFF. (2) Gire STANDBY hacia arriba.

lugar. Por lo tanto, la demostración comenzará

mantendrá mientras la pila de litio esté en su

el modo de demostración, este modo se

automatically 10 minutes later every time you turn the POWER switch to CAMERA, or after you Note that once you enter Demo mode, this mode is retained as long as the lithium battery is in place. Therefore, demonstration starts eject the cassette.

To exit Demo mode

(1) Turn the POWER switch to OFF.
(2) Turn STANDBY up.
(3) While holding down ■ STOP, turn the POWER switch to CAMERA

Si aparece la demostración al conectar la alimentación de la videocámara por primera vez,

L'sted podrá ver una corta demostración de las

imágenes con títulos.

Para ver la demostración

Identificación de las partes

salga del modo de demostración para utilizar la

videocámara.

9 7 ∞ 6 9 12:00:00 PREC 0 00.00 ALTO DATE **●** W DT CCD-TR510E

1 Back light indicator (p. 29)

2 Power zoom indicator (p. 16)

(3) Manteniendo presionada 🗷 STOP hacia abajo,

gire el selector POWER hasta CAMERA.

4 Lithium battery indicator (p. 38)

6 Recording in LP mode (p. 12)

🗍 Indicador de videofilmación a contraíuz

2 Indicador del zoom motorizado (pág. 16) Para la CCD-TR510E solamente

3 Indicador de advertencia (pág. 70)

4 Indicador de estado de la pila de litio (pág. 38)

S Lámpara indicadora de videofilmación/ estado de la batería (pág. 12)

6 Grabación en el modo LP (pág. 12)

7 Modo de transporte de la cinta (pág. 12)

 9 Indicador de grabación automática de la fecha (AUTO DATE) (pág. 12) 8 Contador de la cinta (pág. 14)

[10] Indicador de carga restante de la batería (pág. 42)

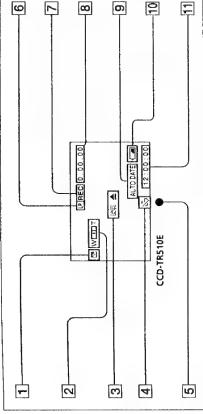
[1] Fecha, hora o título (pág. 28, 33)

In the Viewfinder

The indicators appear in CAMERA mode only.

Los indicadores aparecerán solamente en el modo CAMERA.

En el visor



For CCD-TR510E only

3 Warning Indicator (p. 70)

5 Recording lamp/battery lamp (p. 12)

7 Tape transport mode (p. 12) 8 Tape counter (p. 14) 9 AUTO DATE indicator (p. 12)

10 Remaining battery indicator (p. 42)

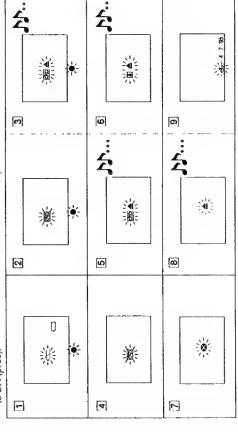
Date, Time or Title (p. 28, 33)

If indicators flash in the viewfinder, or a caution All indicators appear only when you use the lamp on the camcorder flashes, check the camcorder in CAMERA mode. following:

cuando utilice la videocámara en el modo CAMERA. Si parpadean indicadores en el visor, o una lámpara de precaución en la videocámara, Todos los indicadores aparecerán solamente verifique los puntos siguientes:

☼: You can hear the beep sound when BEEP is set to ON (p. 36).

J: Si ajusta BEEP a ON, podrá oir los pitidos (p. 36).



- Battery Remaining Slow flashing: The battery is weak. Fast flashing: The battery is dead.
- 3 The tape has run out.

[2] The tape is near the end.

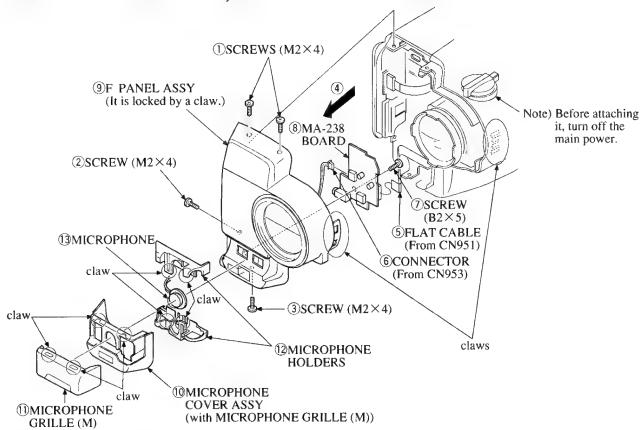
- 4 No tape has been inserted.
- [5] The tab on the tape is out (red) (p.11).
- (p.46). Moisture condensation has occurred (p.46). inserted.
- 7 The video heads may be contaminated (p.48).
- Disconnect the power source and contact your Sony dealer or local authorized facility. 8 Some other trouble has occurred.
- 9 The lithium battery is weak or the lithium battery is not installed (p. 38). This indicator flashes just only after powering G.

- Parpadeo zápido: La batería está agotada. Parpadeo lento: La batería está débil. Carga restante de la bateria
- 🔼 La cinta está a punto de finalizar. 3 La cinta ha finalizado.
 - 4 No hay videocassette insertado.
- 5 La lengüeta del videocassette está al descubierto (roja) (pág.11).
- 6 Se ha producido condensación de humedad (pág.46). El indicador 🖨 aparecerá solamente cuando esté insertado un videocassette.
 - 7 Las cabezas de vídeo pueden estar contaminadas (pág.48).
- pongase en contacto con su proveedor Sony o una estación de servício autorizada local. Desconecte la fuente de alimentación y 8 Se ha producido algún otro problema.
- (pág. 38). Este indicador parpadeará solamente después 9 La pila de litio está débil, o no está colocada de conectar la alimentación.

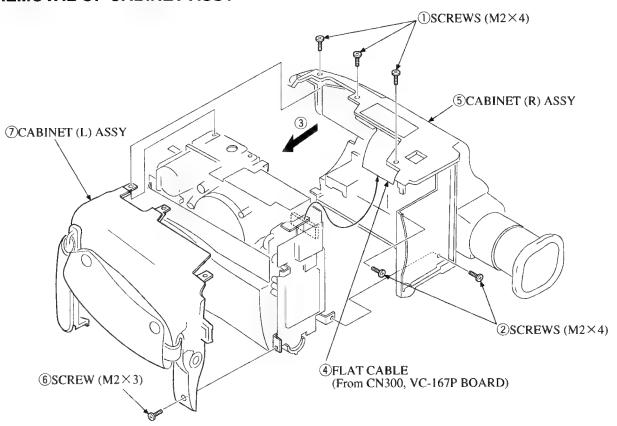
SECTION 2 DISASSEMBLY

NOTE: Follow the disassembly procedure in the numerical order given.

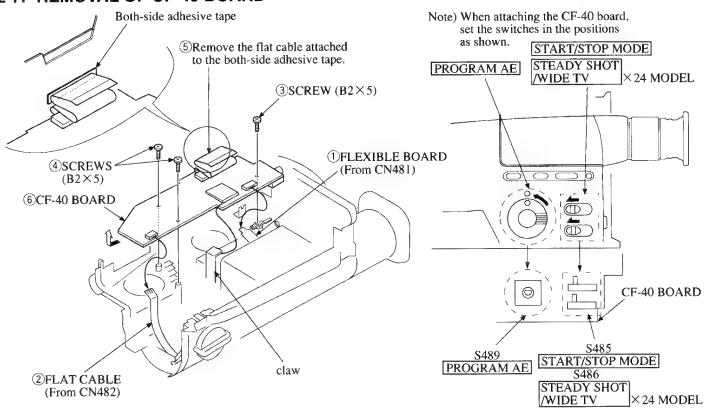
2-1. REMOVAL OF F PANEL ASSY, MA-238 BOARD and MICROPHONE



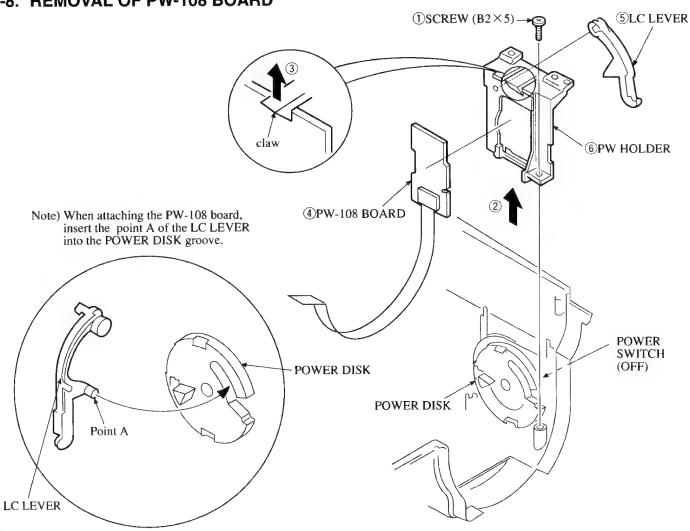
2-2. REMOVAL OF CABINET ASSY



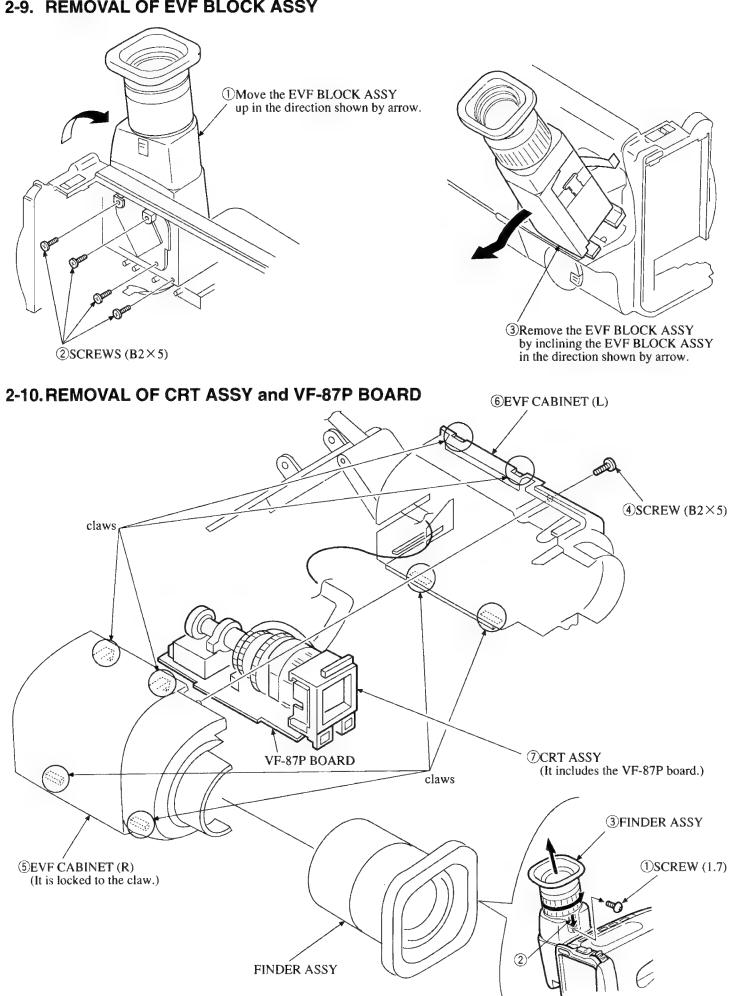
2-7. REMOVAL OF CF-40 BOARD



2-8. REMOVAL OF PW-108 BOARD



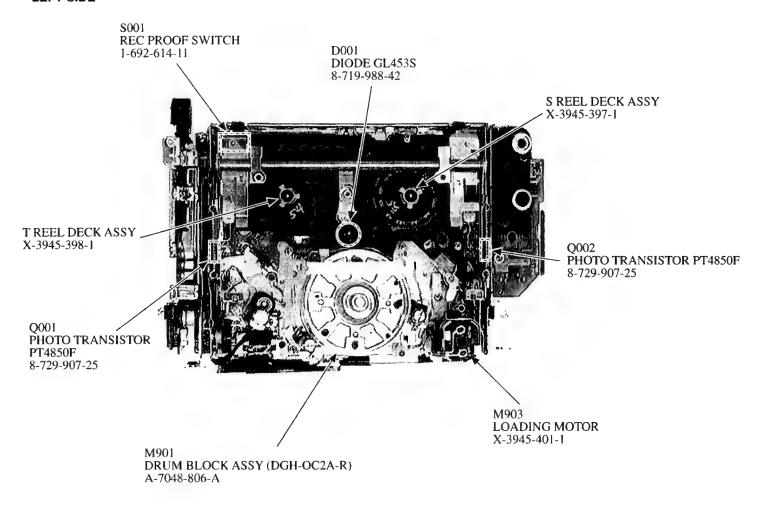
2-9. REMOVAL OF EVF BLOCK ASSY



2-5

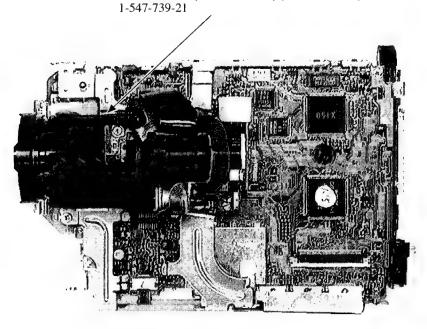
2-11. INTERNAL VIEWS

-LEFT SIDE-

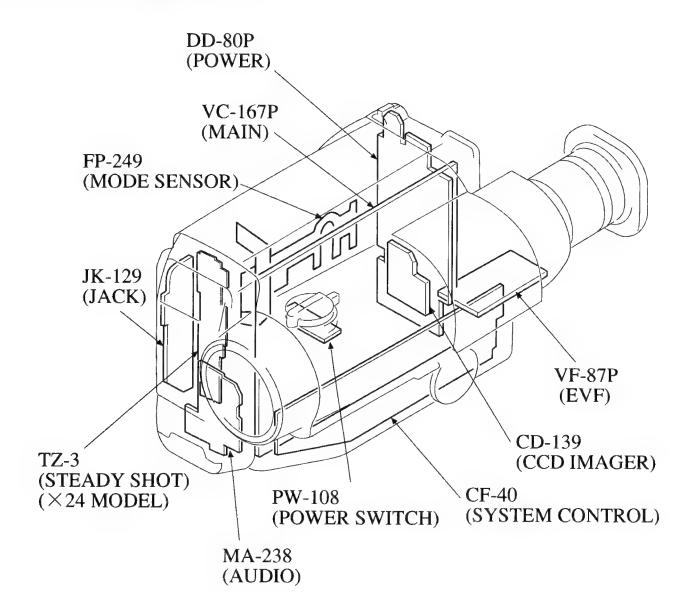


-RIGHT SIDE-

ZOOM LENS (VCL-6310WA) (×10 MODEL) 1-547-833-11 ZOOM LENS (VCL-5412WB) (×24 MODEL)

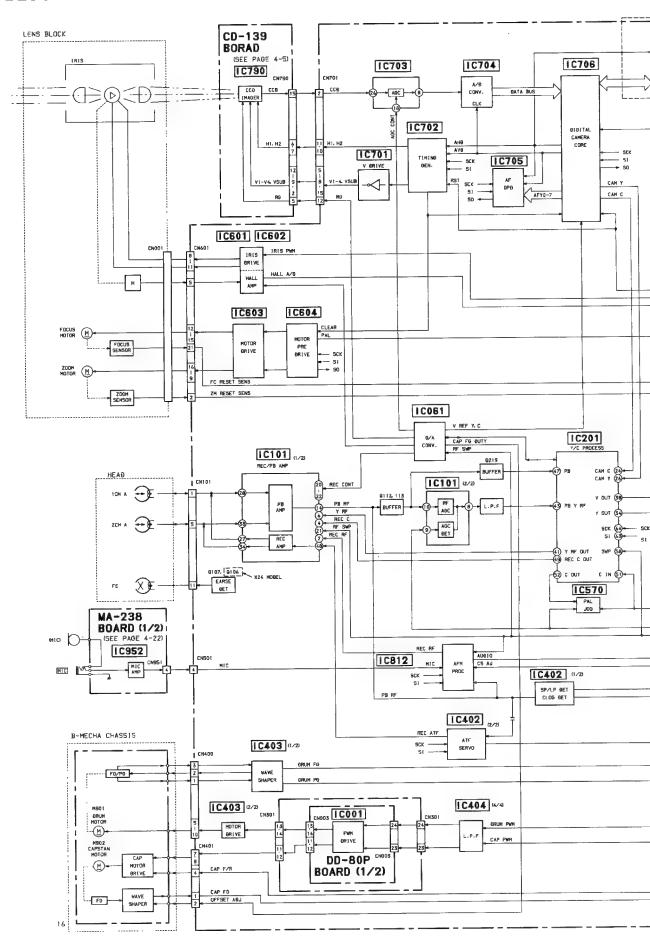


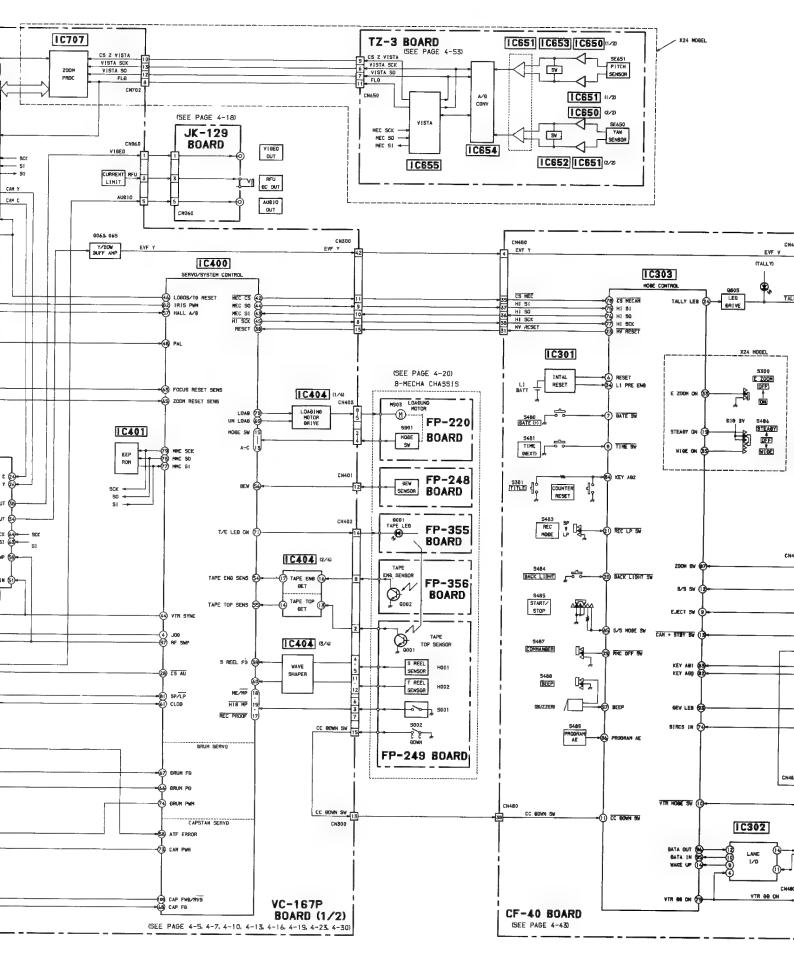
2-12. CIRCUIT BOARDS LOCATION

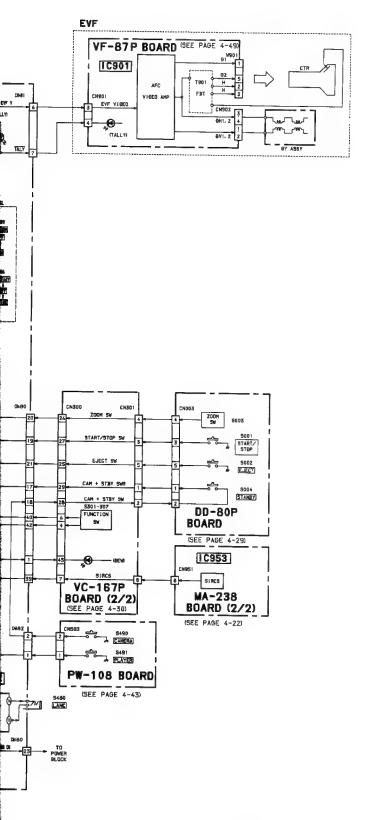


SECTION 3 BLOCK DIAGRAMS

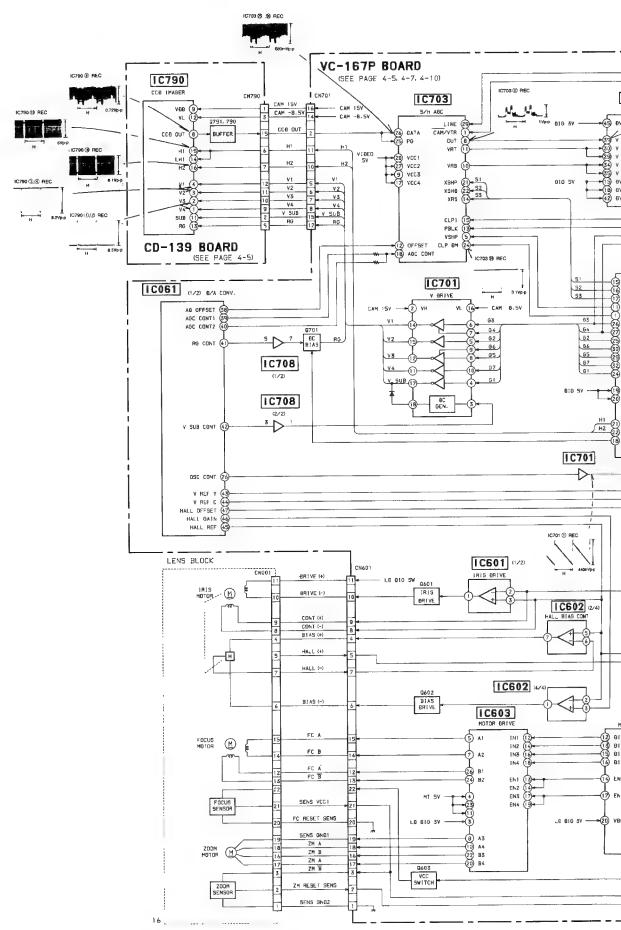
3-1. OVERALL BLOCK DIAGRAM

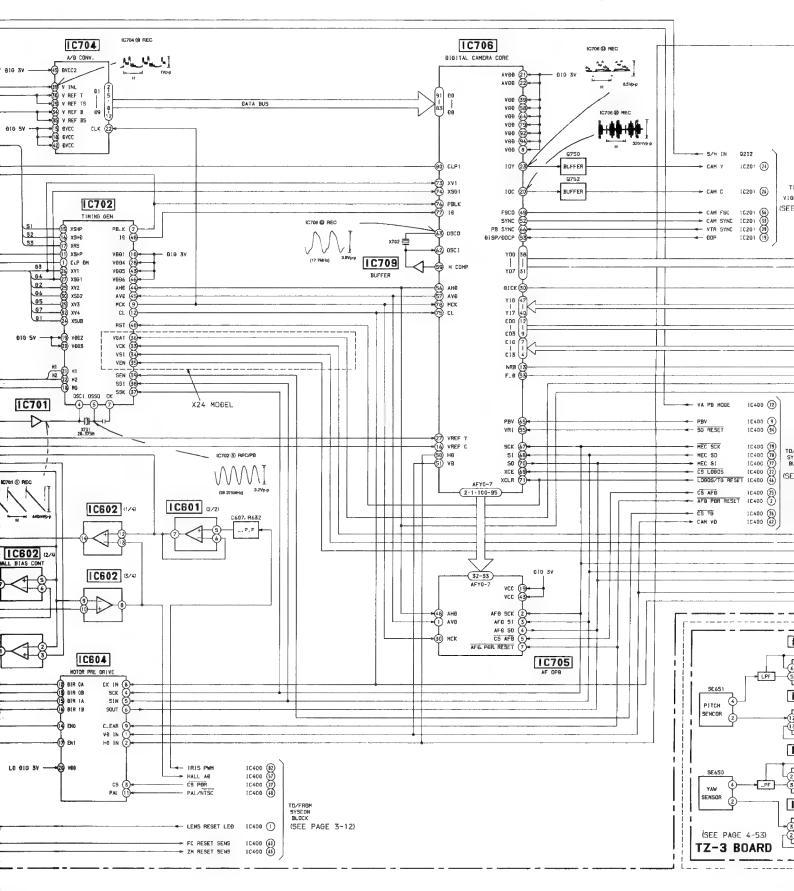


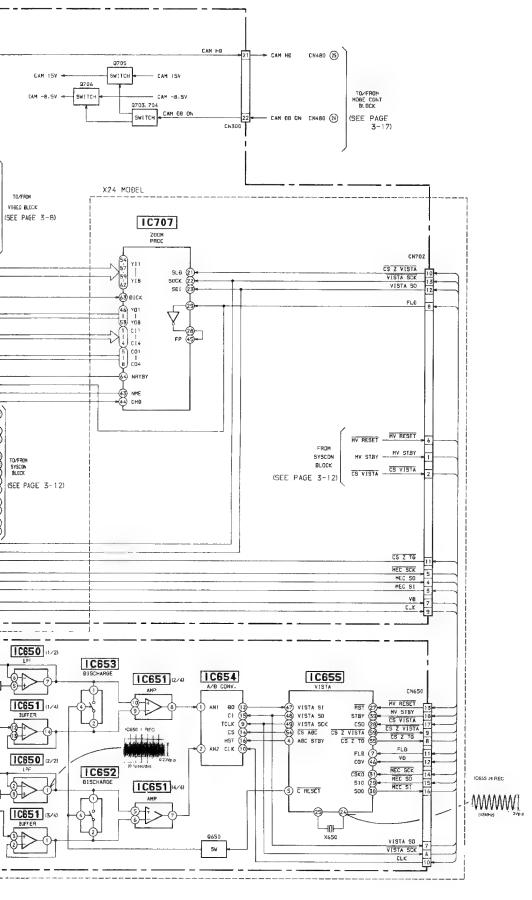




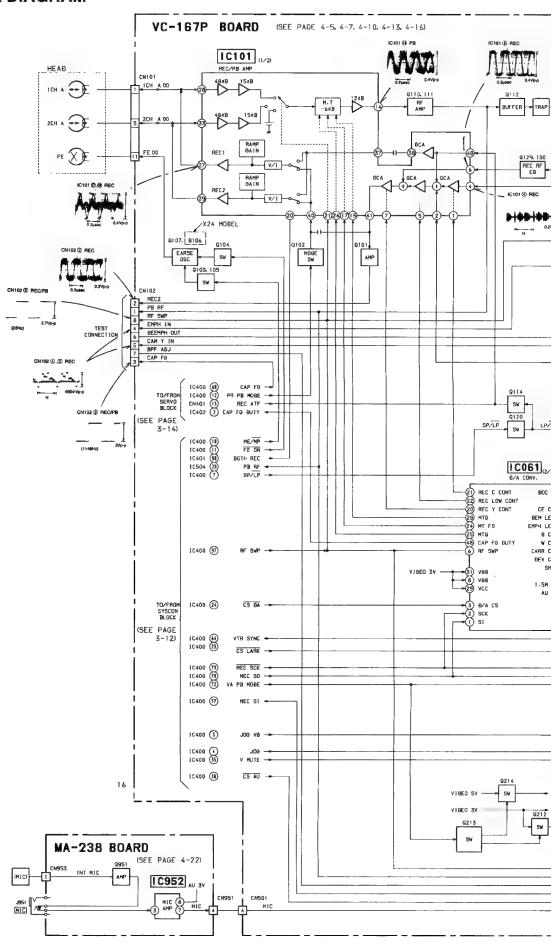
3-2. CAMERA BLOCK DIAGRAM

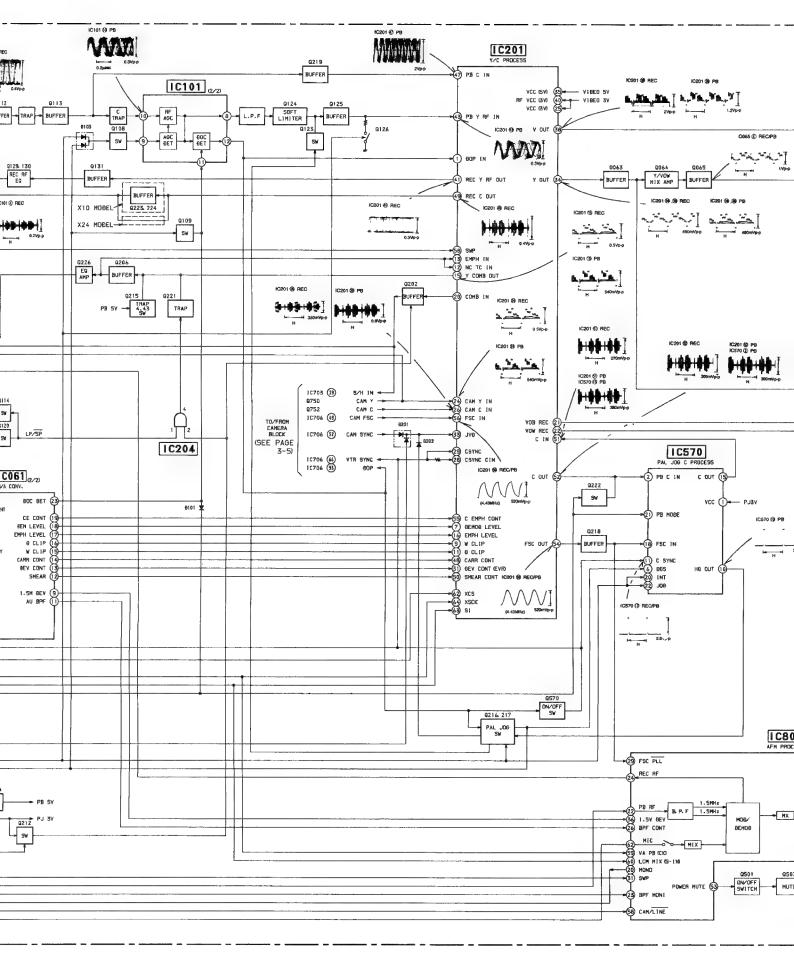


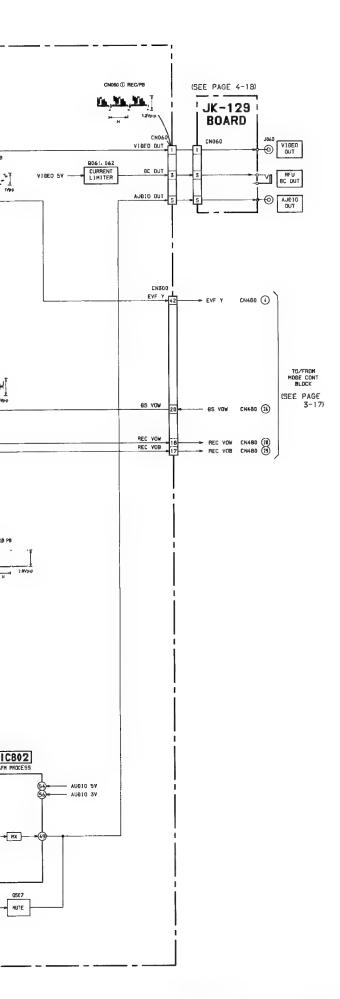




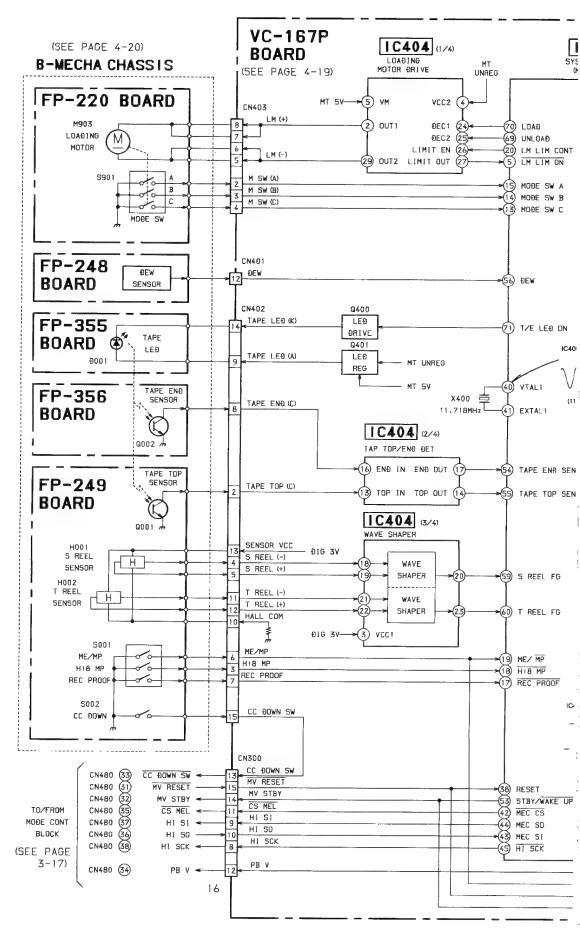
3-3. VIDEO/AUDIO BLOCK DIAGRAM

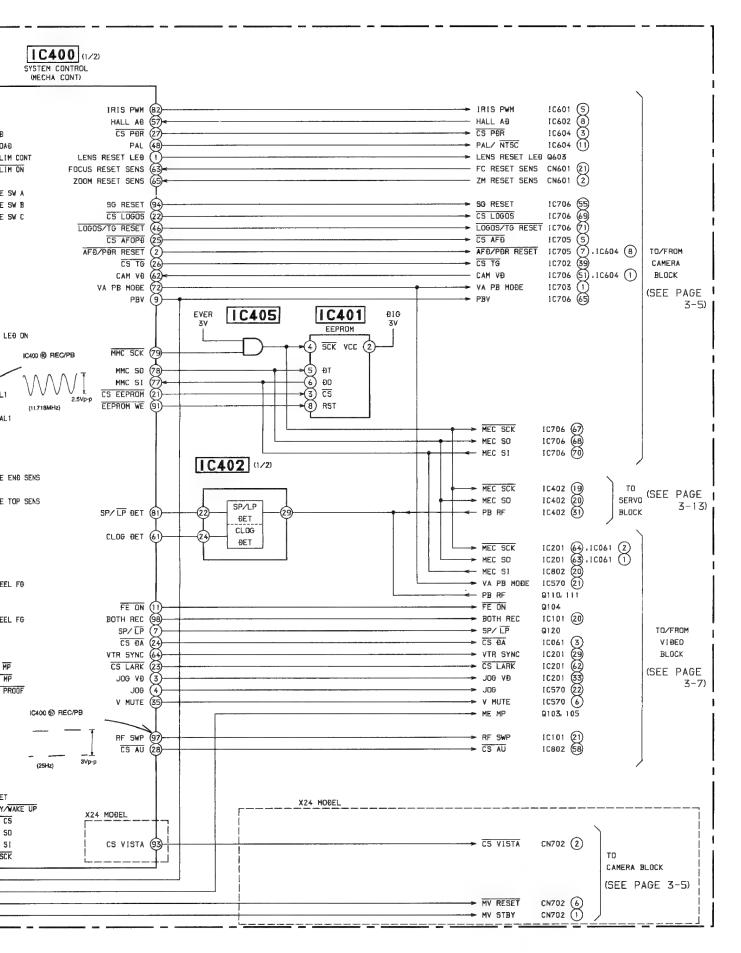




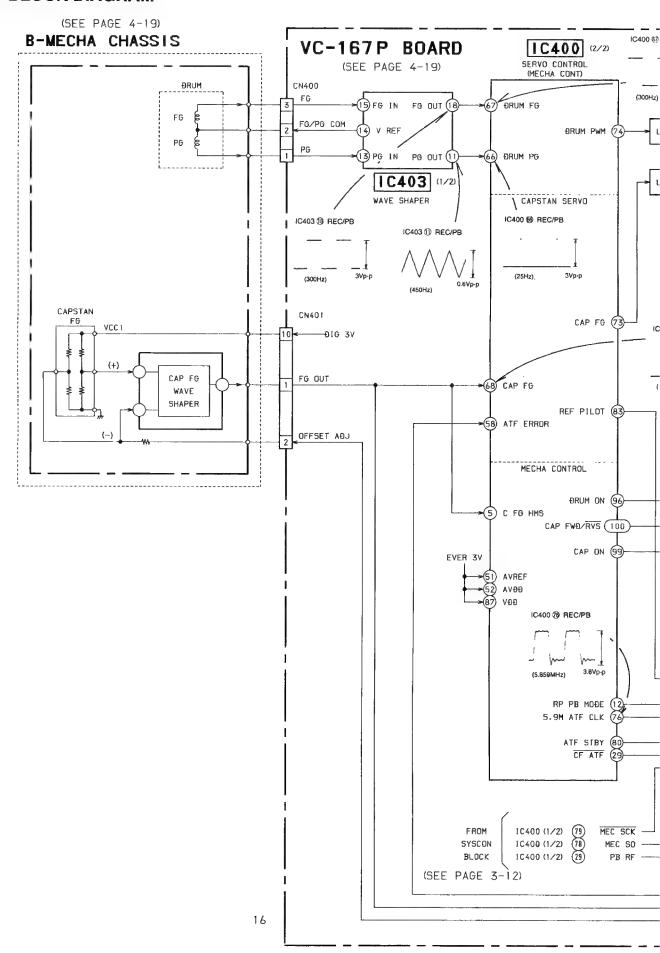


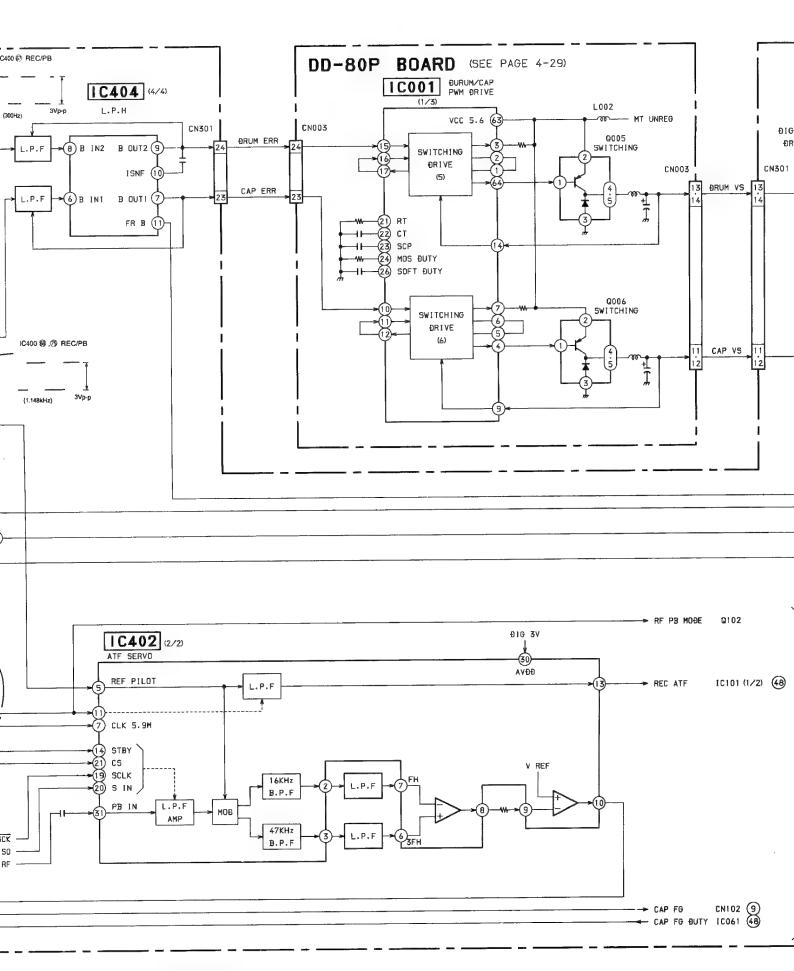
3-4. SYSTEM CONTROL BLOCK DIAGRAM

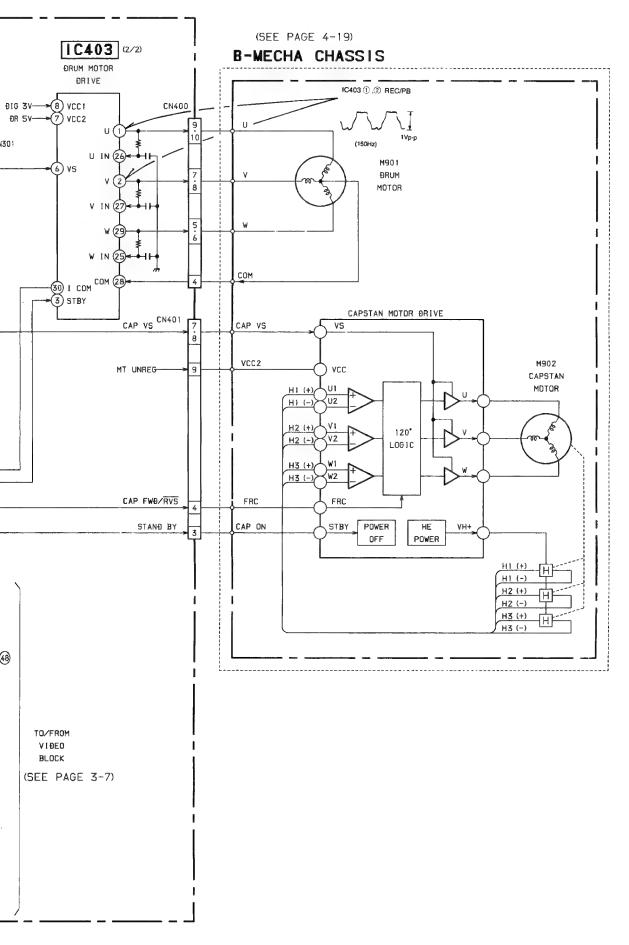




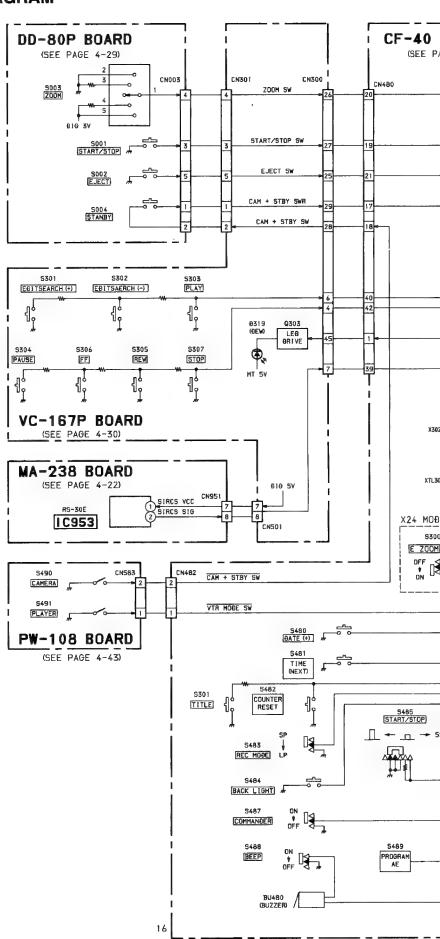
3-5. SERVO BLOCK DIAGRAM

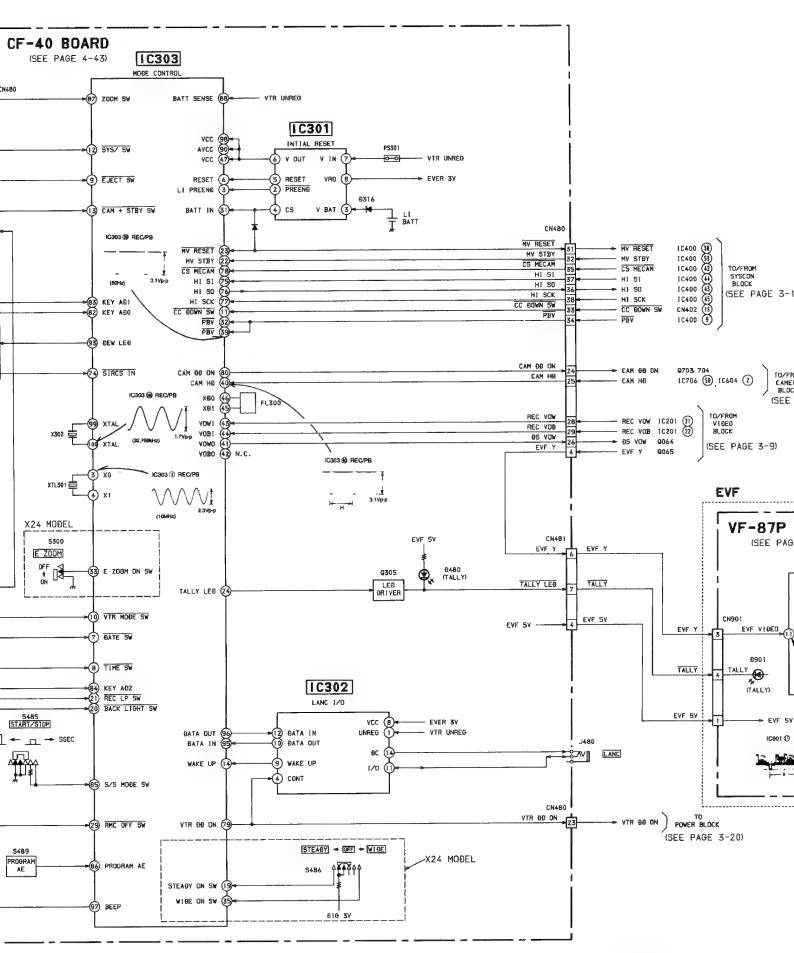






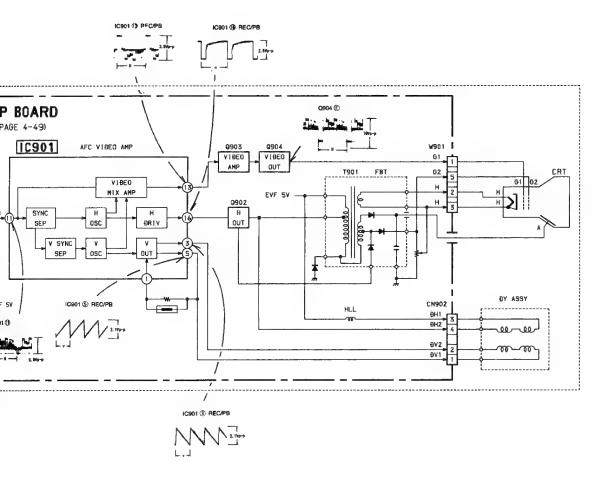
3-6. MODE CONTROL/EVF BLOCK DIAGRAM



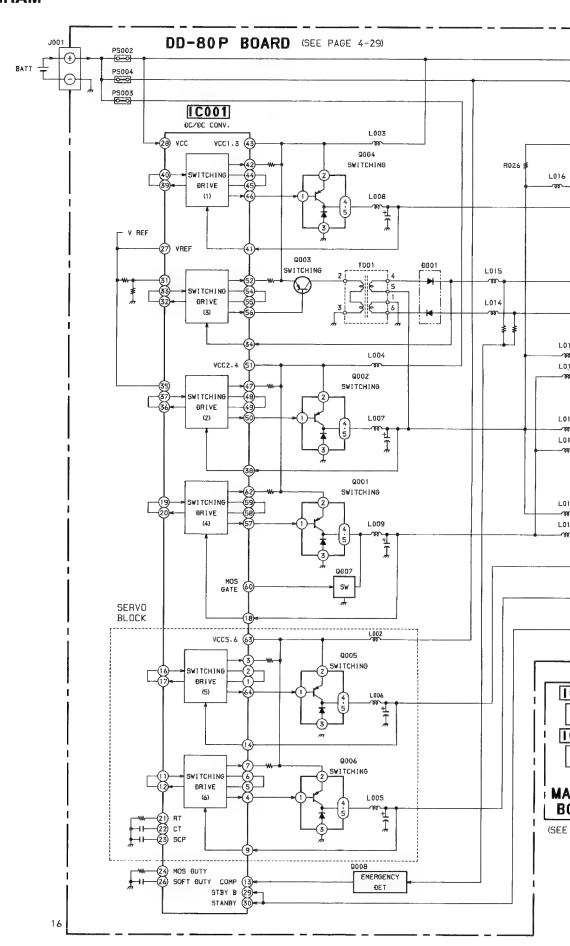


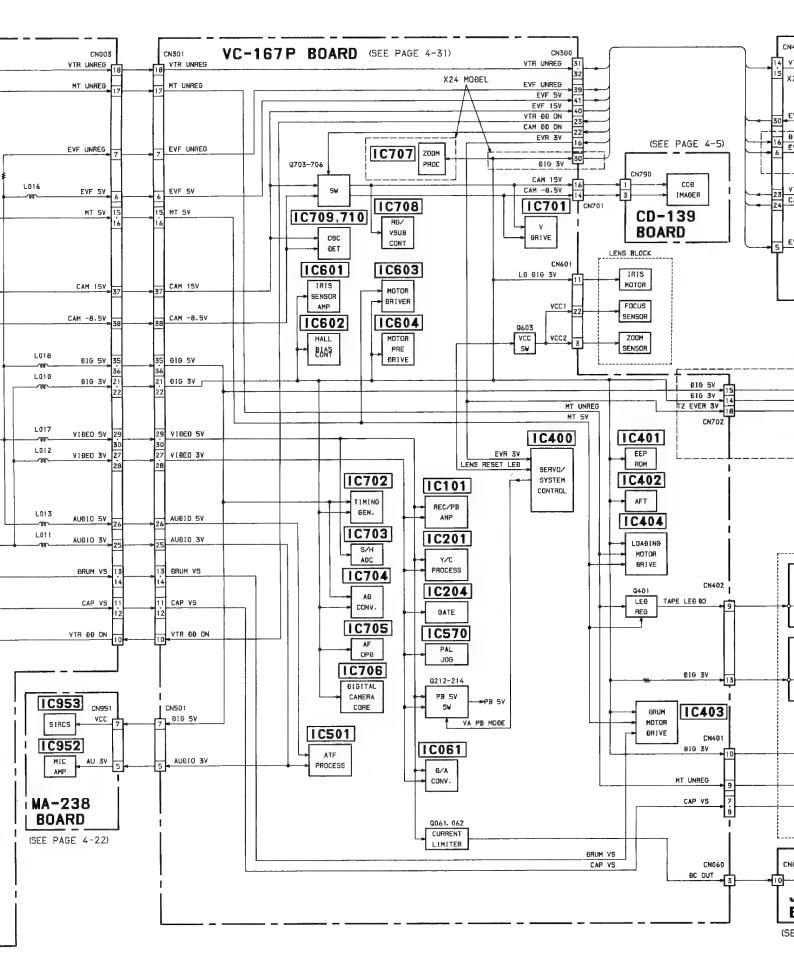
3-11)

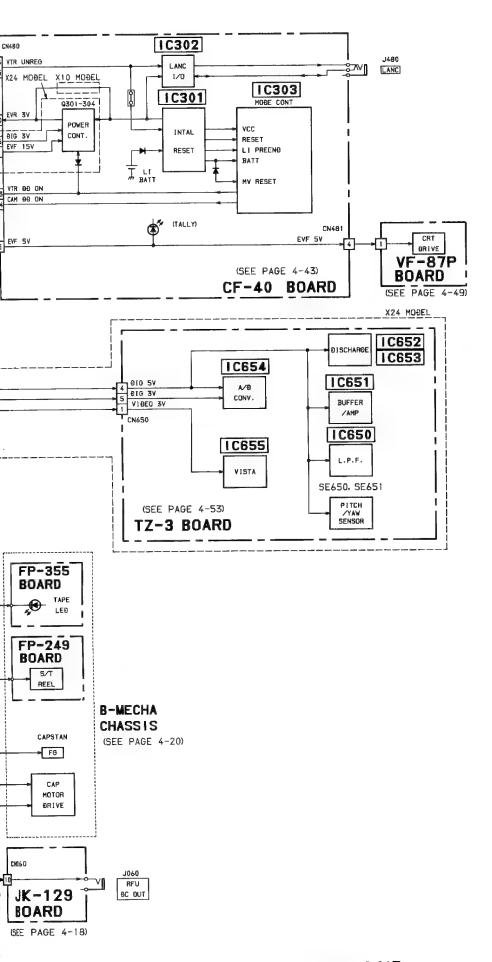
O/FROM CAMERA BLOCK SEE PAGE 3-5)



3-7. POWER BLOCK DIAGRAM

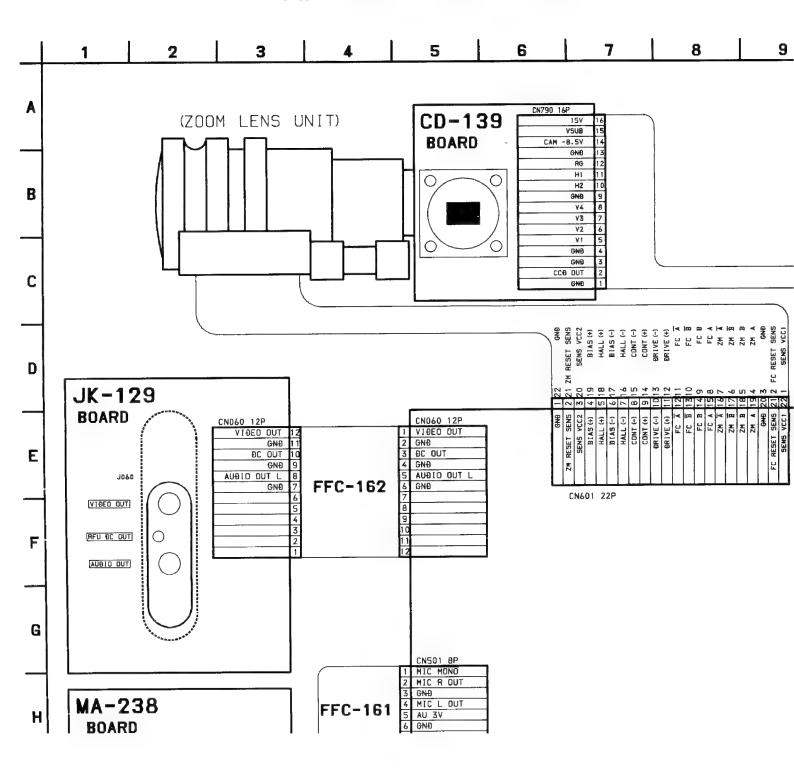




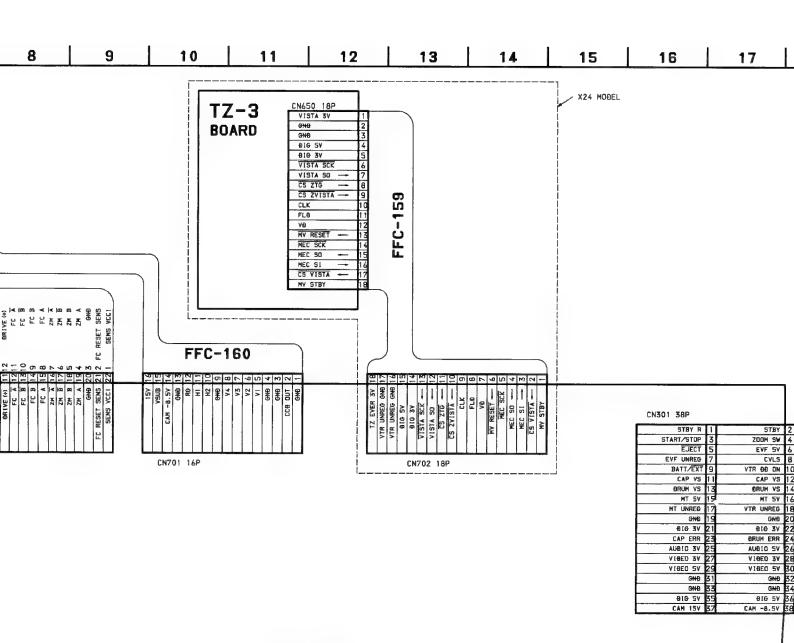


SECTION 4 PRINTED WIRING BOARDS AND SCHEMAT

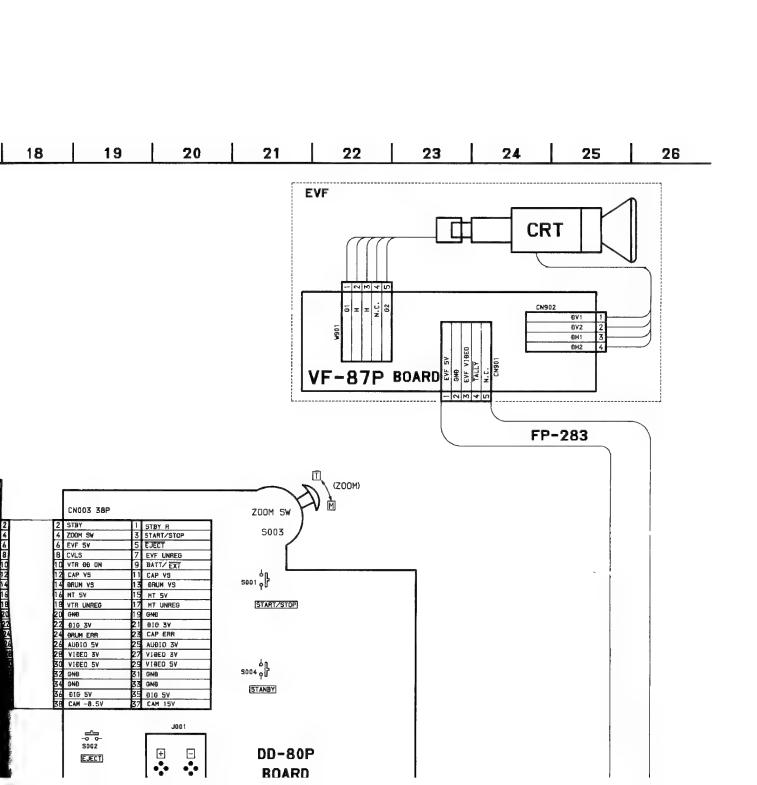
4-1. FRAME SCHEMATIC DIAGRAM

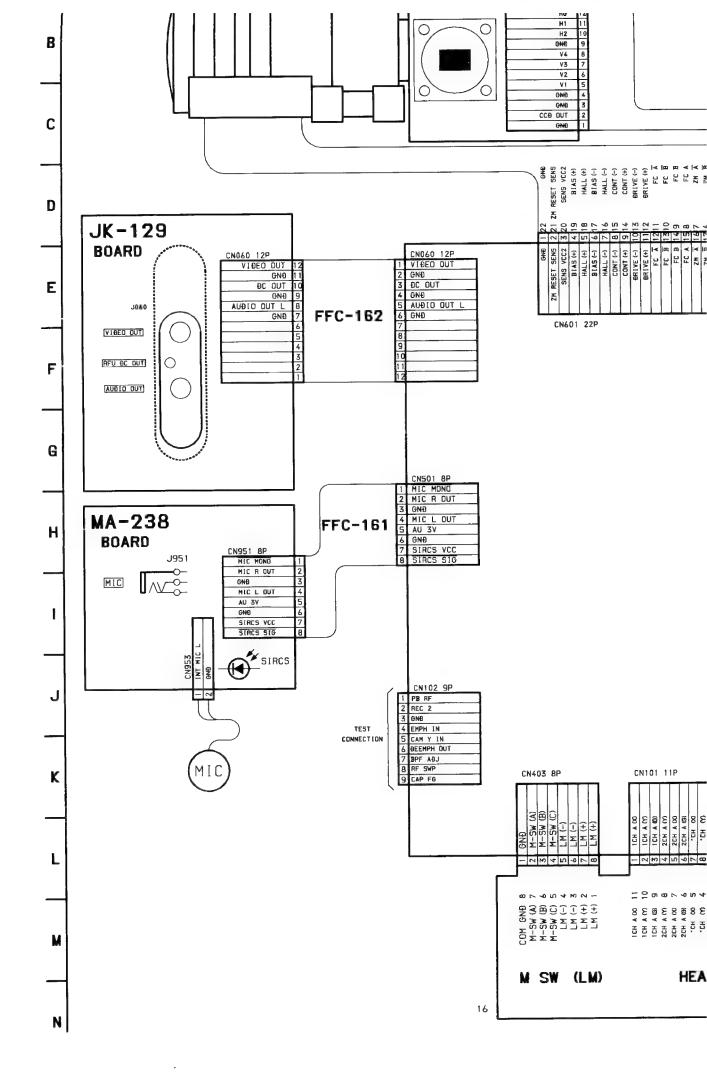


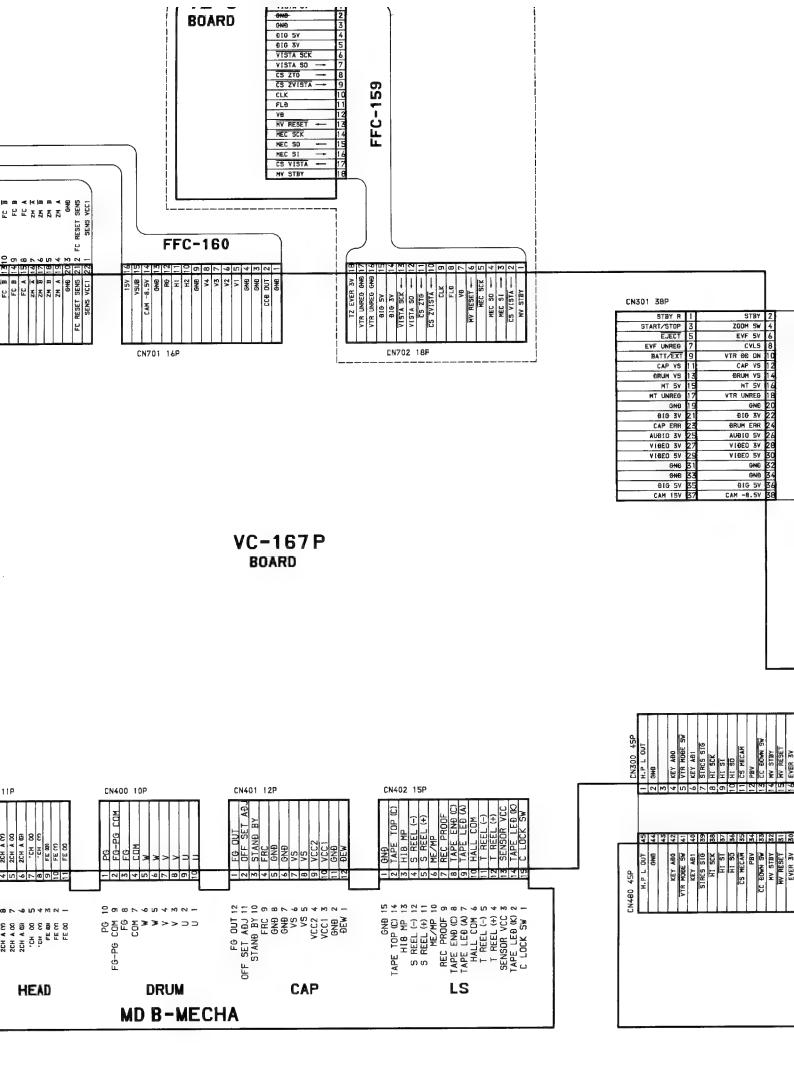
TION 4 AND SCHEMATIC DIAGRAMS

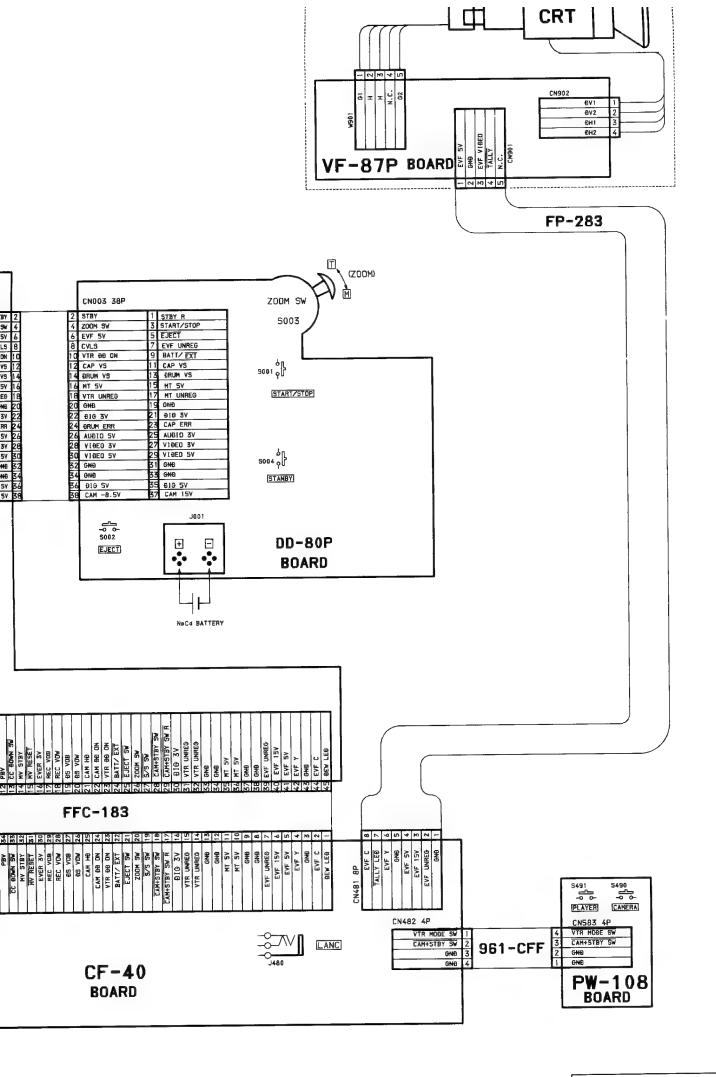


VC-167P









4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS. (In addition to this, the necessary note is printed in each block.)

- For printed wiring boards.
- : indicated a lead wire mounted on the component side.
- Pattern from the side which enables seeing.
 (The other layers' patterns are not indicated.)
- Through hole is omitted.
- Printed wiring board which has four layers structure but inner two layers' patterns are omitted.

Caution:

SIDE A: The pattern face side which is seen when the

upper case is opened.

SIDE B: The opposite pattern face side to the pattern

seen when the upper case is opened.

• Chip parts (3-terminal transistor)



- C: Collector
- B: Base
- E: Emitter
- For schematic diagrams.
- Caution when replacing chip parts..

New parts must be attached after removal of chip.

Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.

All resistor are in ohms, 1/4W unless otherwise noted.

Chip resistor are 1/10W unless otherwise noted.

 $k\Omega$: 1000 Ω , $M\Omega$, : 1000 $k\Omega$.

- All capacitors are in μF unless otherwise noted, pF: μ μF.
 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve
 B, unless otherwise noted.
- : nonflammable resistor.
- fusible resistor.
- panel designation.
- \(\triangle : internal component.
- adjustment for repair. *
- == : B+ Line. *
- === : B- Line. *
- IN/OUT direction of (+,-) B LINE. ★
- Circled numbers refer to waveforms. *
- Signal name

*E/-L→E/L

*-VAPB-VAPB

--EDIT--EDIT

*VAPB→VAPB

NOTE:

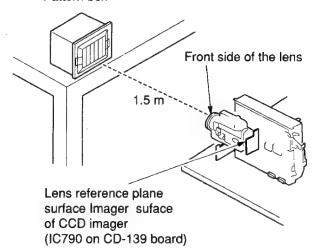
The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name. Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values * and reference waveforms.

(VOM of DC 10 M Ω input impedance is used.).

- Voltage values change depending upon input impedance of VOM used.)
- 1. Connection

Pattern box



Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

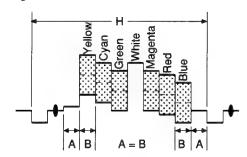


Fig. a (Video output terminal output waveform)

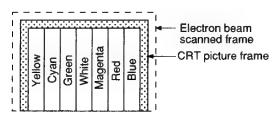
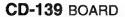
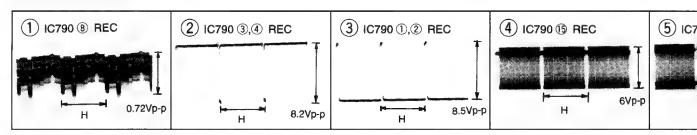


Fig. b (Picture on monitor TV)

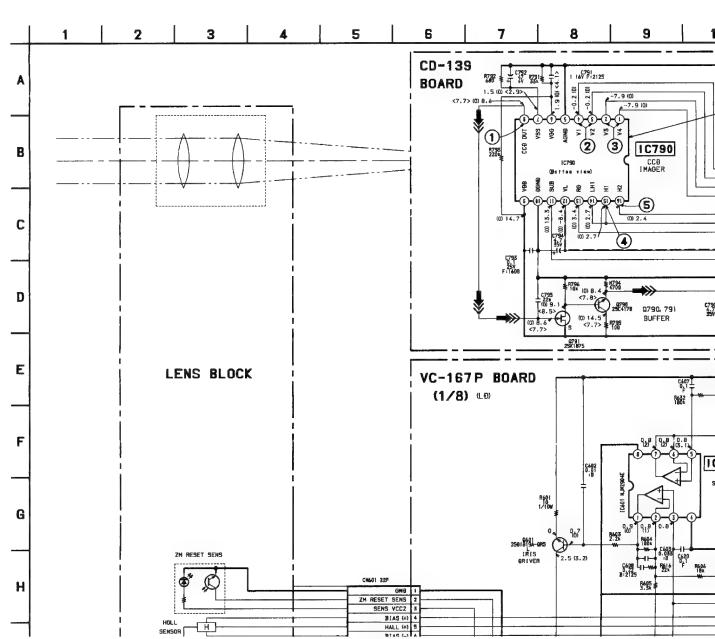


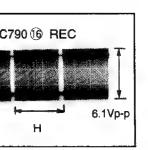


VC-167P (CAMERA 1), CD-139 (CCD IMAGER) SCHEMATIC DIAGRAMS

- Ref. No. VC-167P Board; 1,000 Series, CD-139 Board; 2,000 Series -

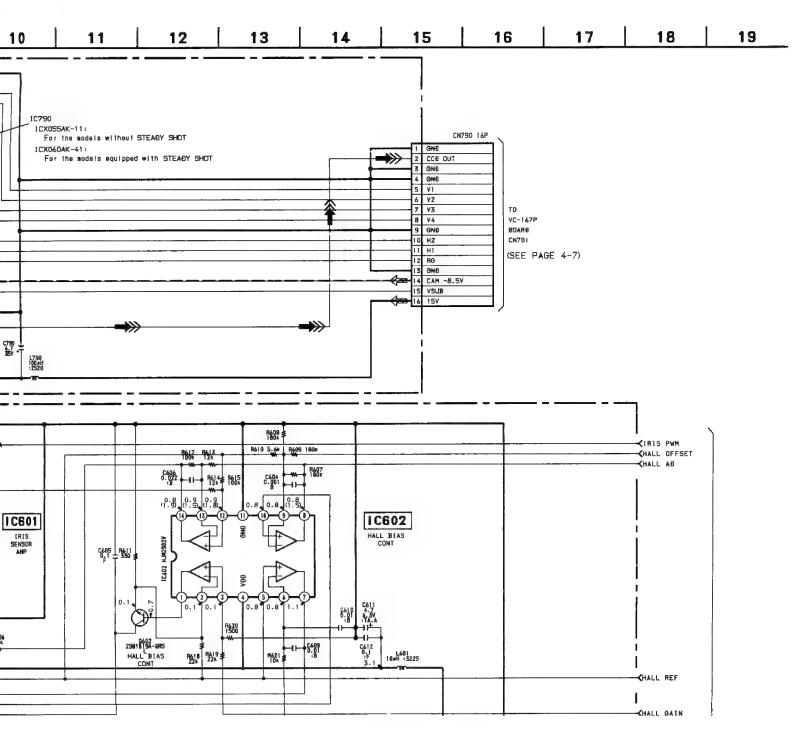
- See page 4-35 for VC-167P
- See page 4-46 for CD-139 B





P BOARD printed wiring board.

BOARD printed wiring board.



because it is damaged by the heat.

All resistor are in ohms, 1/4W unless otherwise noted.
 Chip resistor are 1/10W unless otherwise noted.

 $k\Omega$: 1000 Ω , $M\Omega$, : 1000 $k\Omega$.

- All capacitors are in μF unless otherwise noted. pF : μ μF.
 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve
 B, unless otherwise noted.
- : nonflammable resistor.
- fusible resistor.
- \(\triangle : internal component.
- adjustment for repair. *
- : B+ Line. *
- === : B- Line. *
- IN/OUT direction of (+,−) B LINE. ★
- Circled numbers refer to waveforms. *
- Signal name

*E/-L→E/L

*-VAPB→VAPB

-EDIT→EDIT

*VAPB→VAPB

NOTE: The components identified by mark ♠ or dotted line with mark ♠ are critical for safety.

Replace only with part number specified.

When indicating parts by reference number, please include the board name.

*: indicated by the color red.

- surface Imager surface of CCD imager (IC790 on CD-139 board)
- 2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

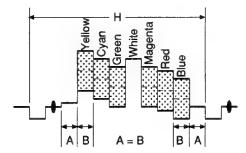


Fig. a (Video output terminal output waveform)

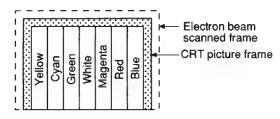
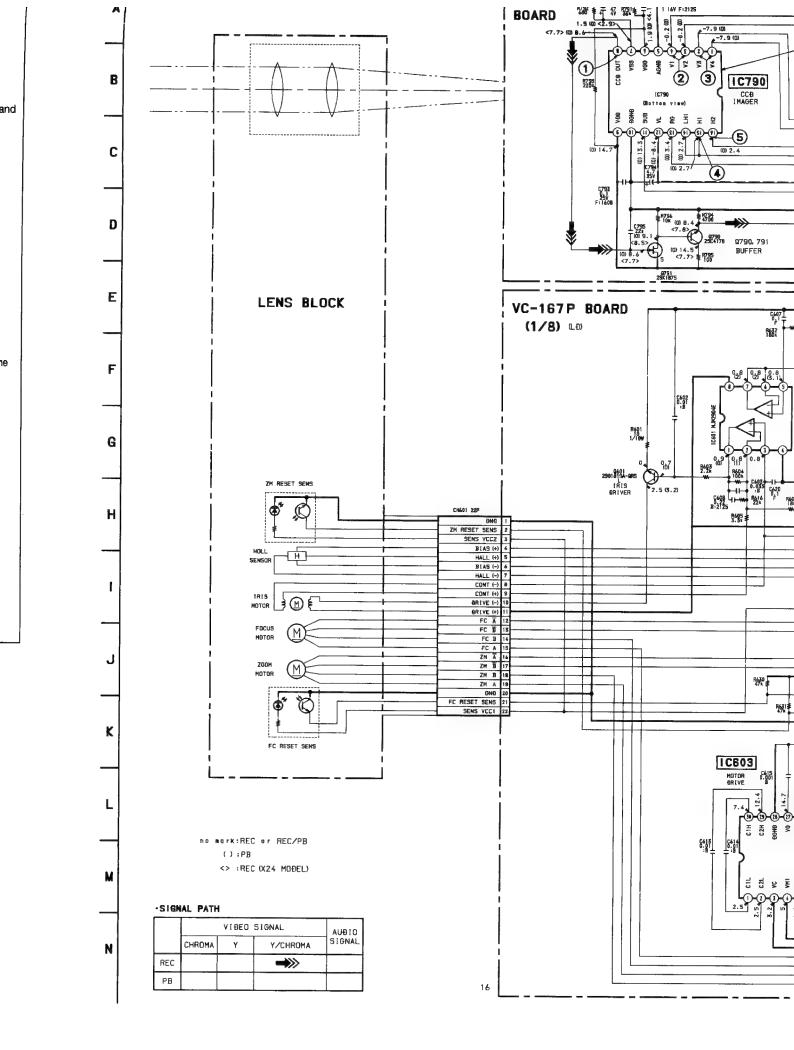
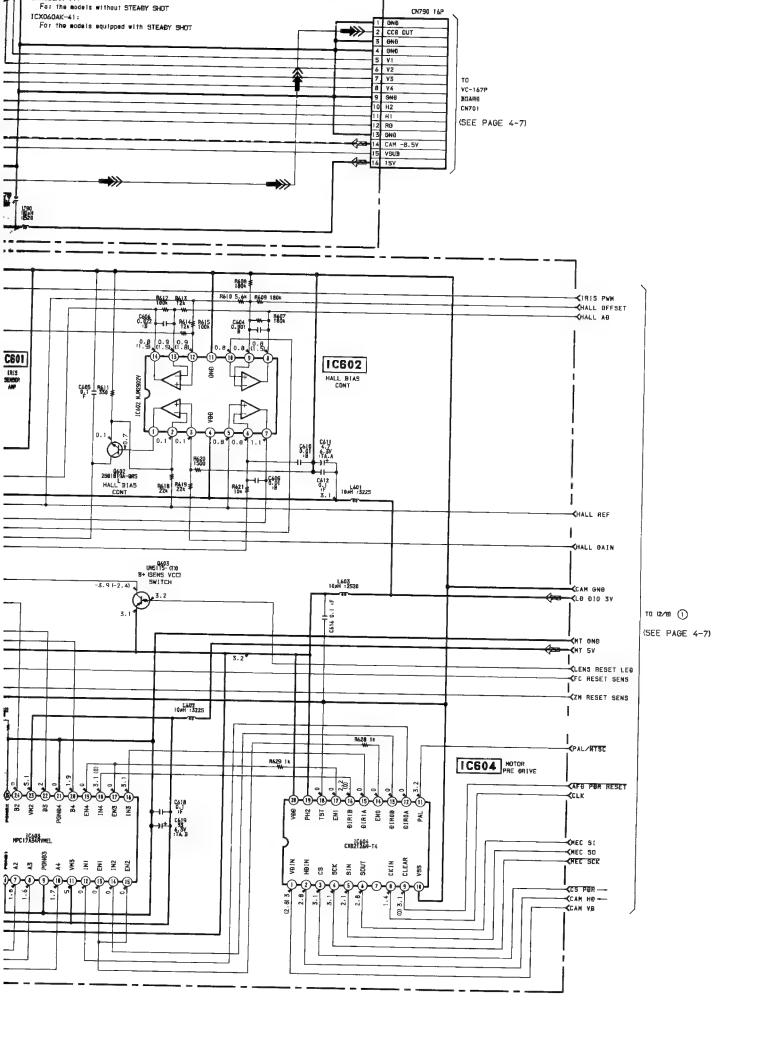


Fig. b (Picture on monitor TV)

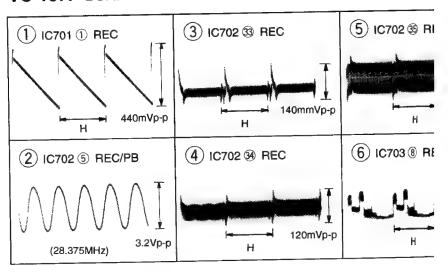
Precautions Upon Replacing CCD Imager

- The CD-139 board mounted as a repair part is not equipped with a CCD imager.
 - When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be dameged by static electricity from its structure, handle it carefully like for the MOS IC.
 In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.





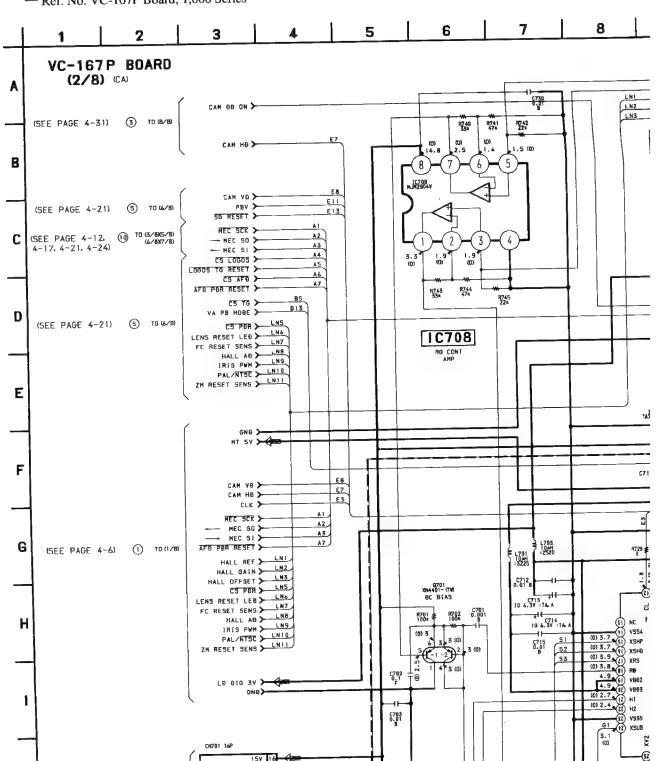
VC-167P BOARD

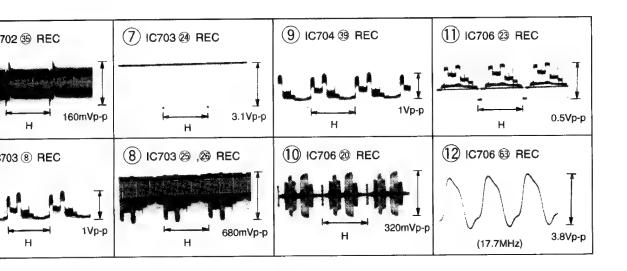


VC-167P (CAMERA 2) SCHEMATIC DIAGRAM

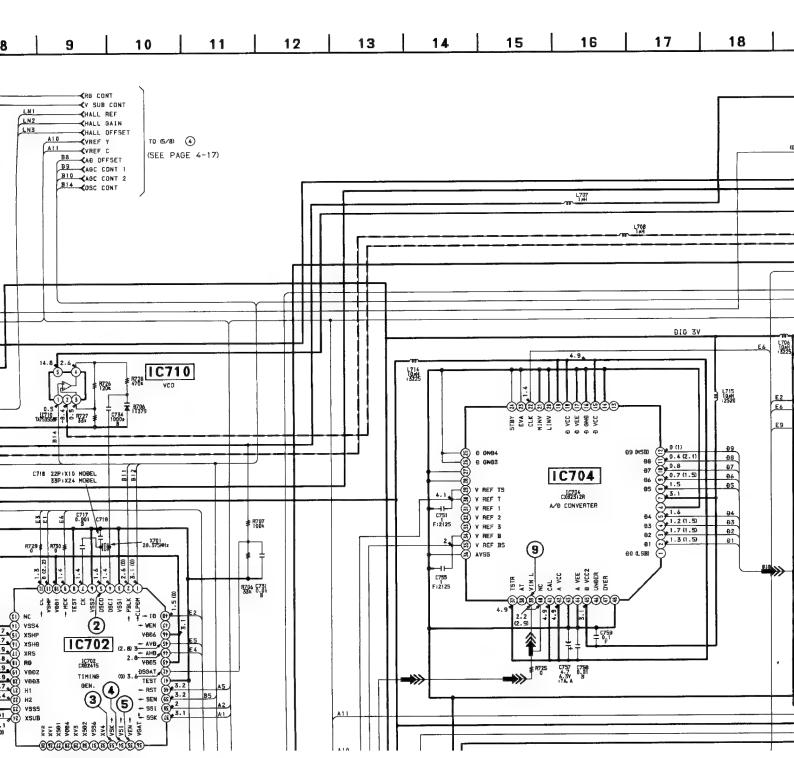
See page 4-35 for VC-167P BO/

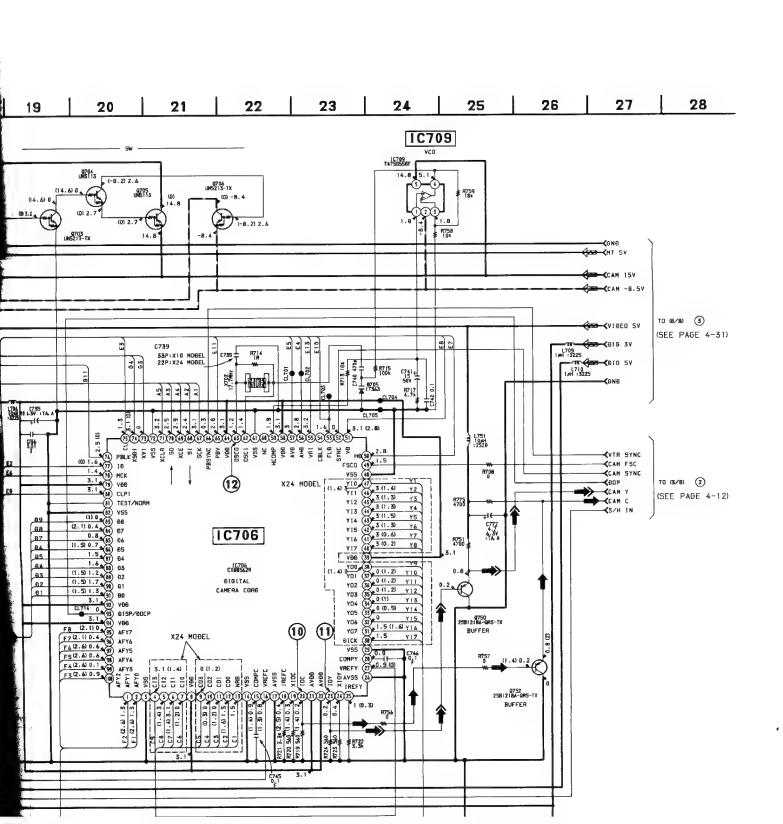
- Ref. No. VC-167P Board; 1,000 Series -

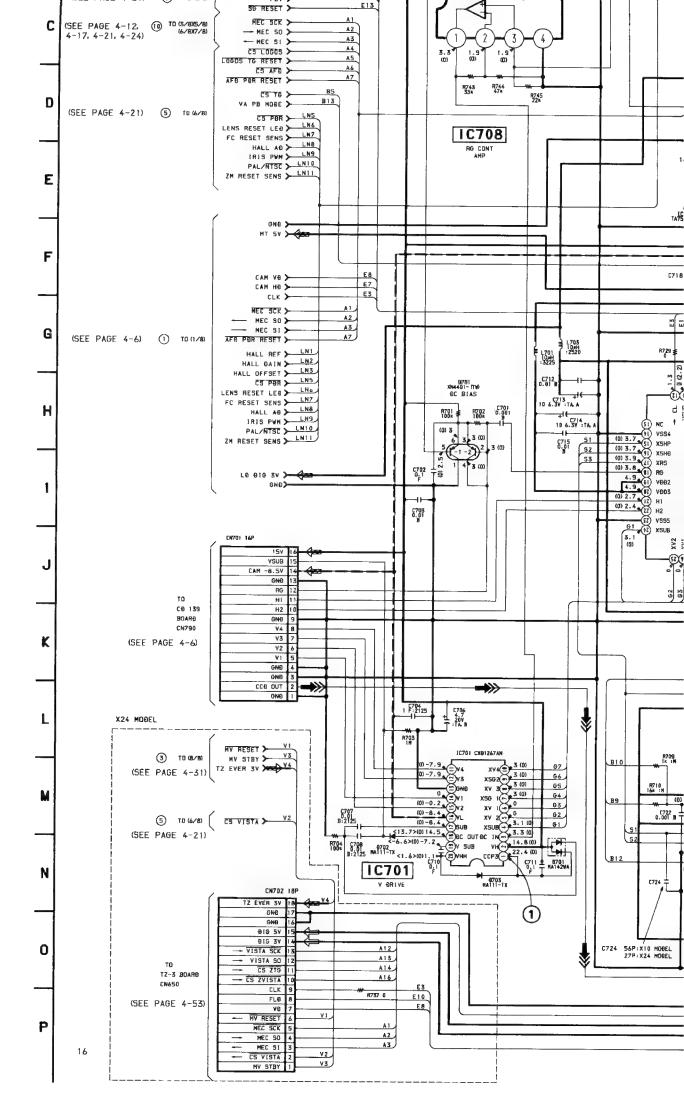


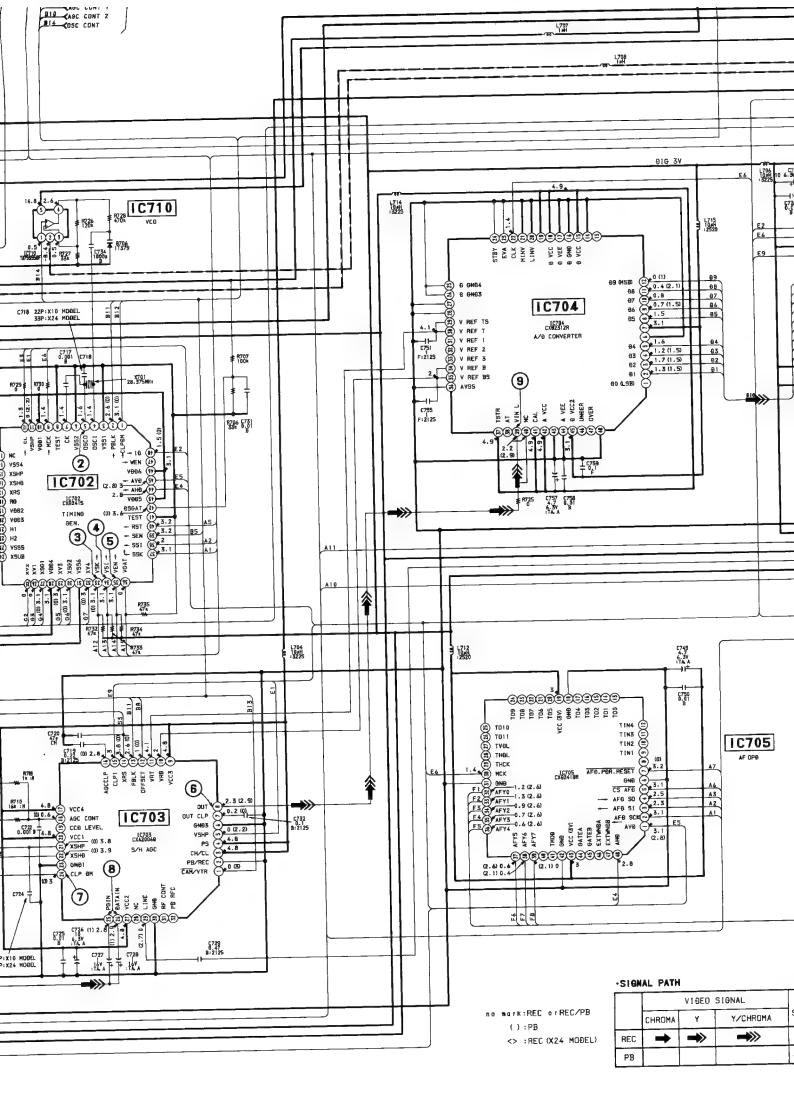


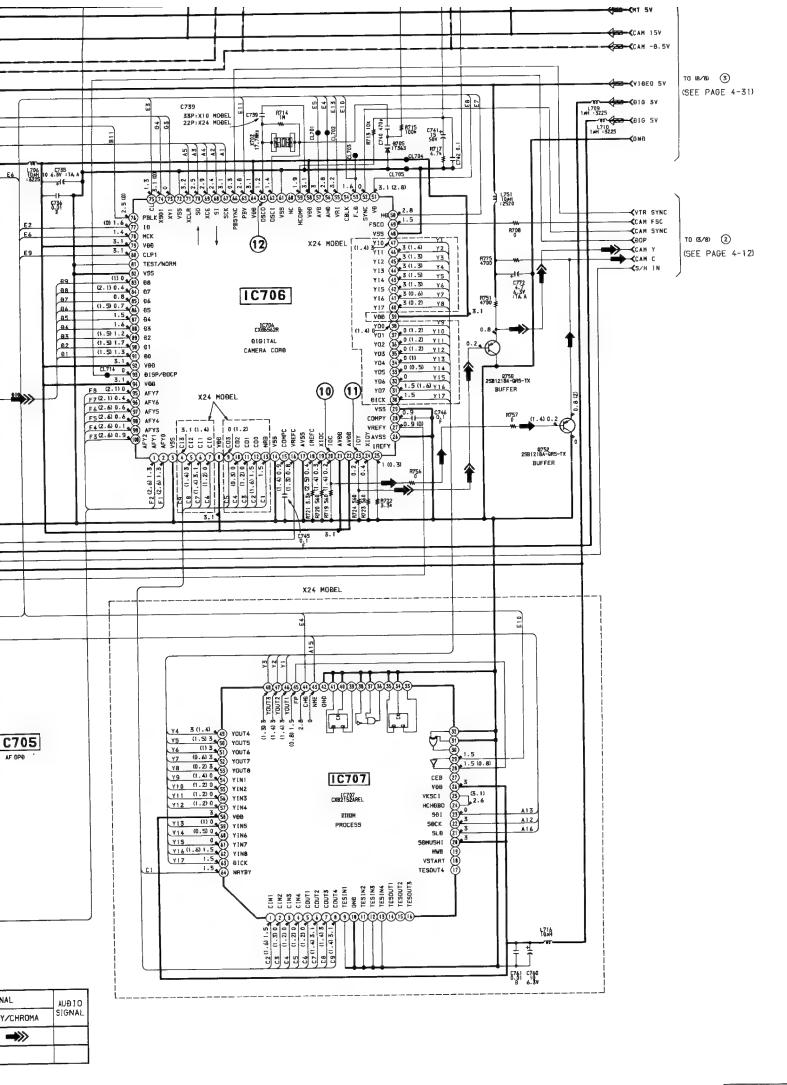
167P BOARD printed wiring board.

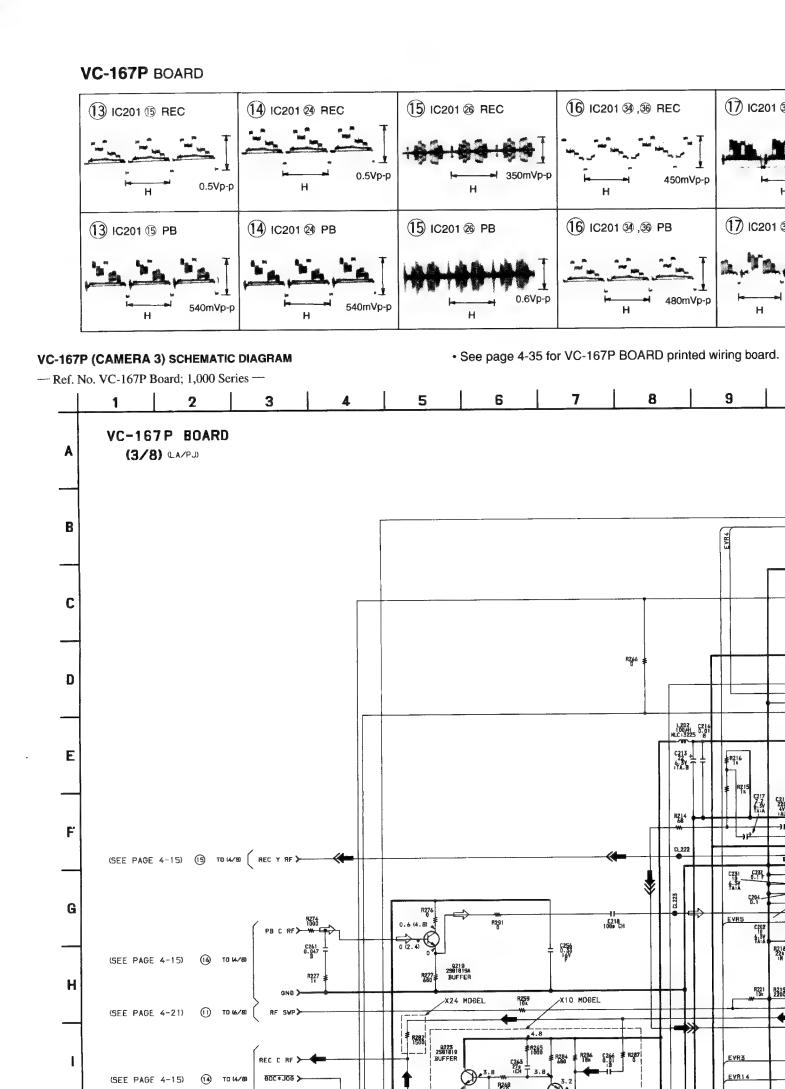




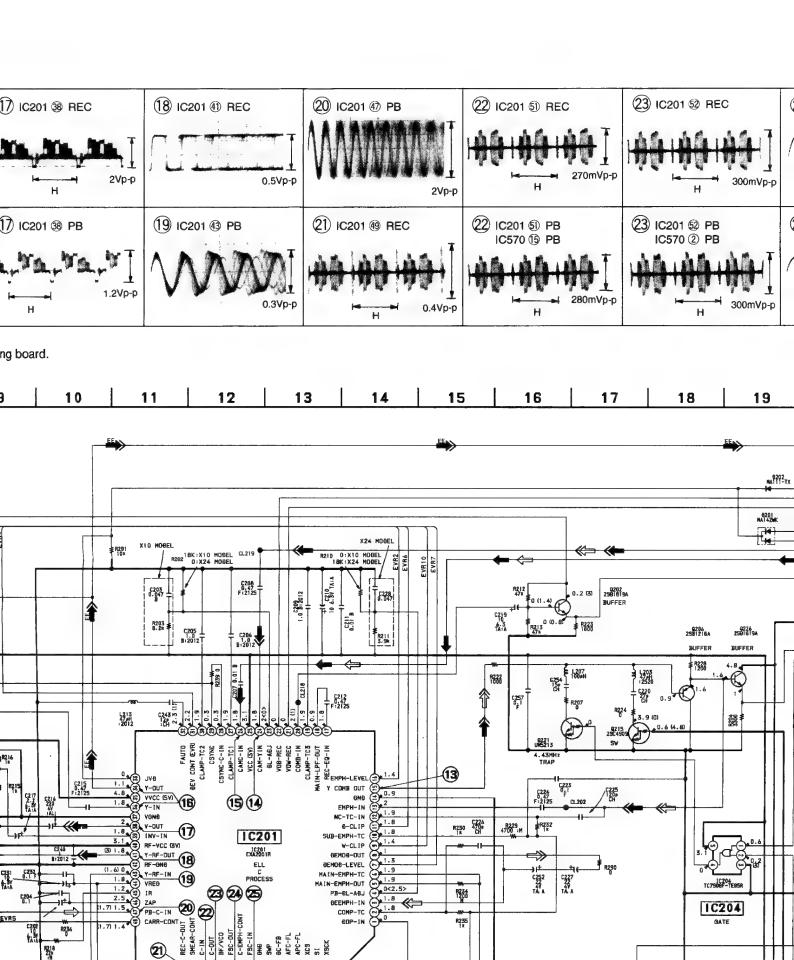








C265 L210



R241 470 :H

R218

R221 R219 10k 2200

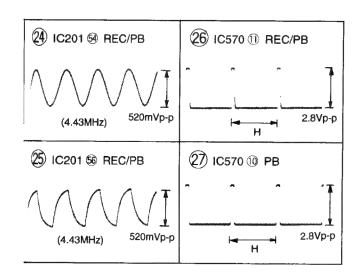
EVR3

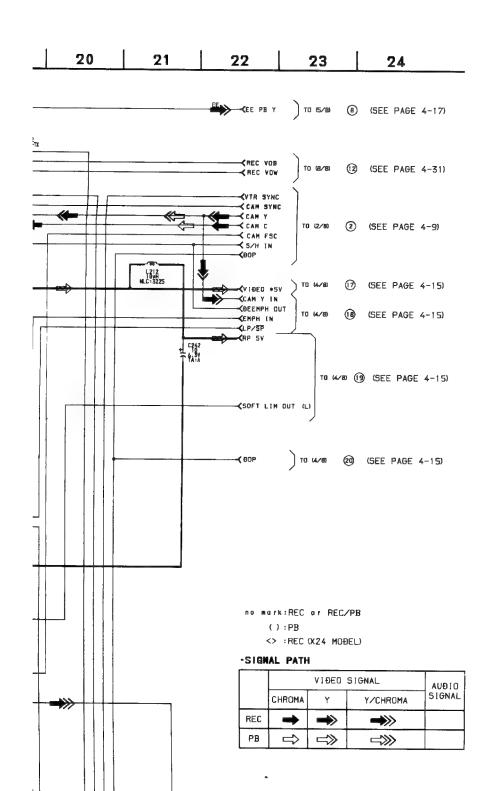
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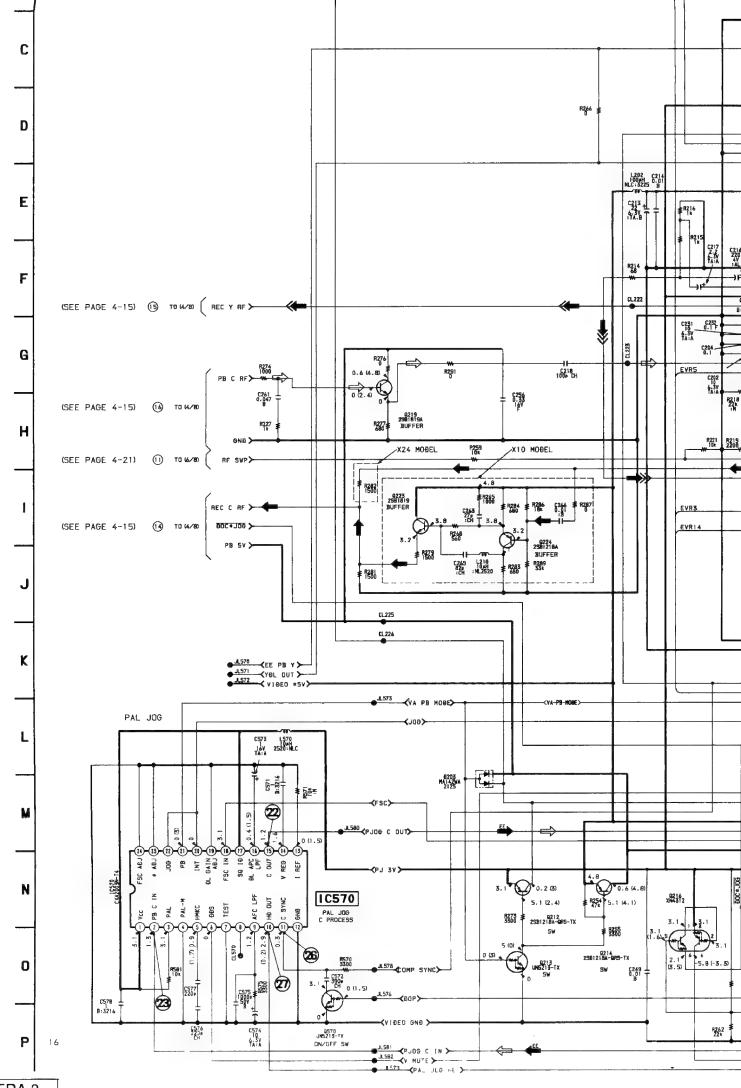
CL283

1348

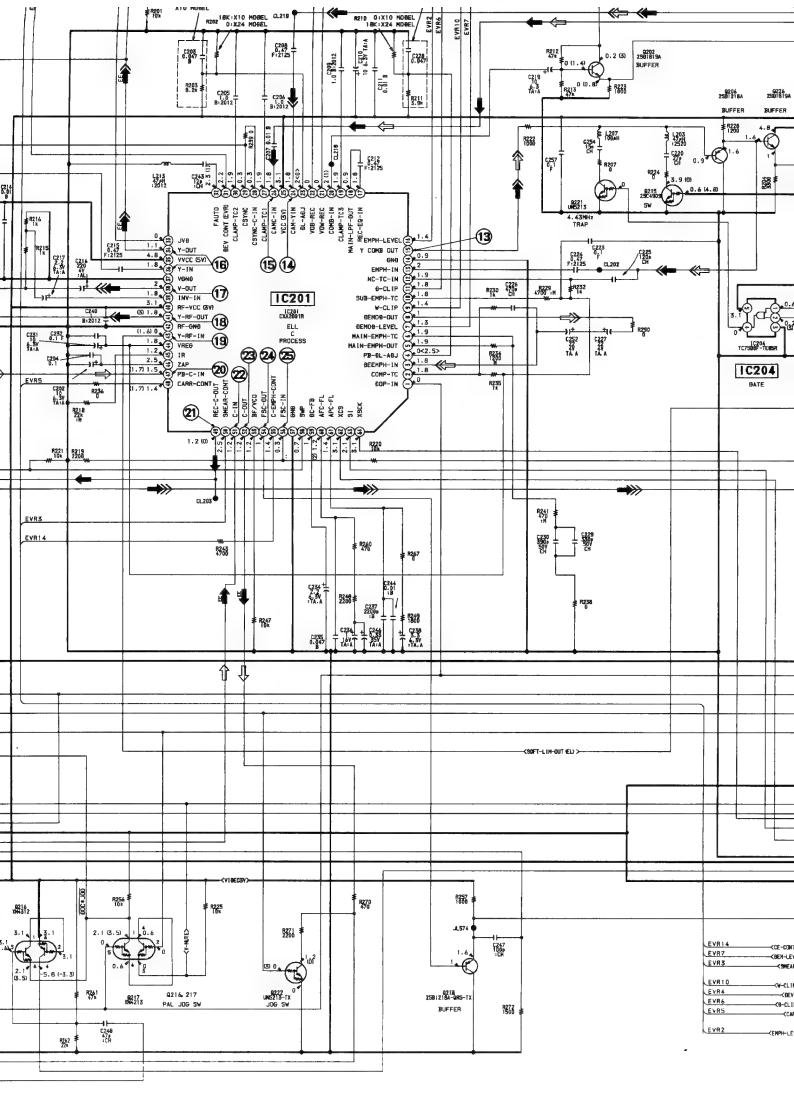
R260

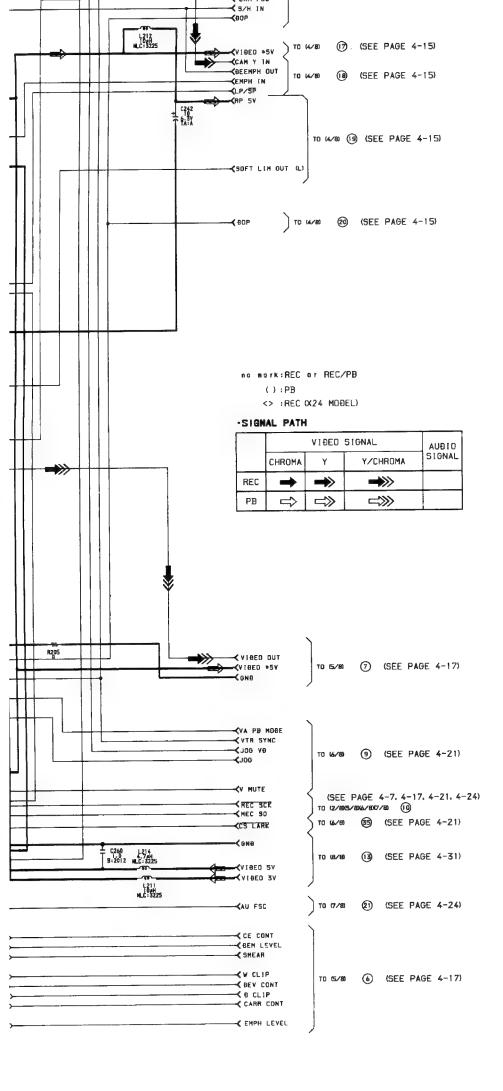






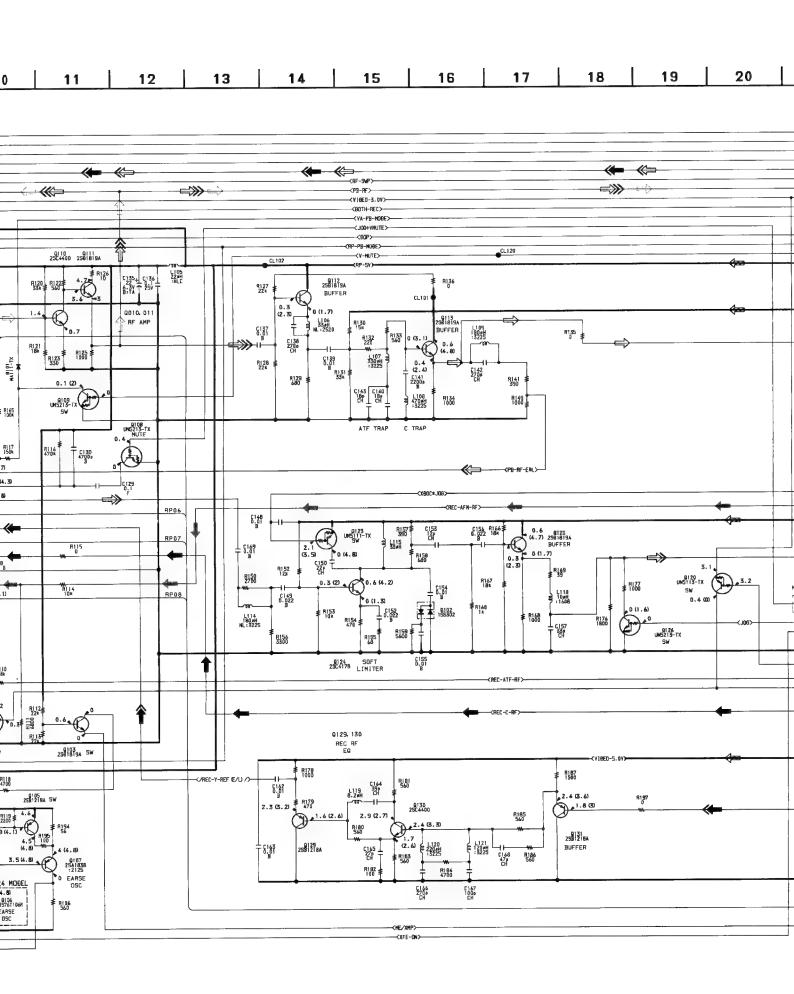
CAMERA 3 VC-167P(3/8)

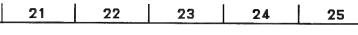




 \Rightarrow

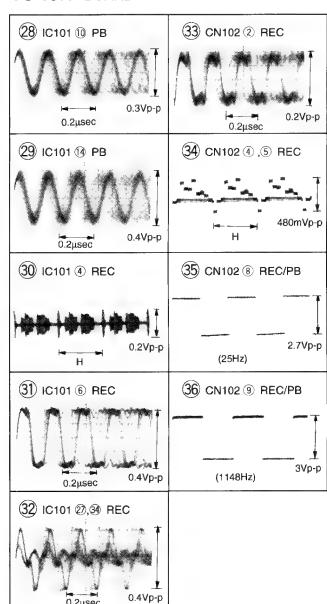
РΒ





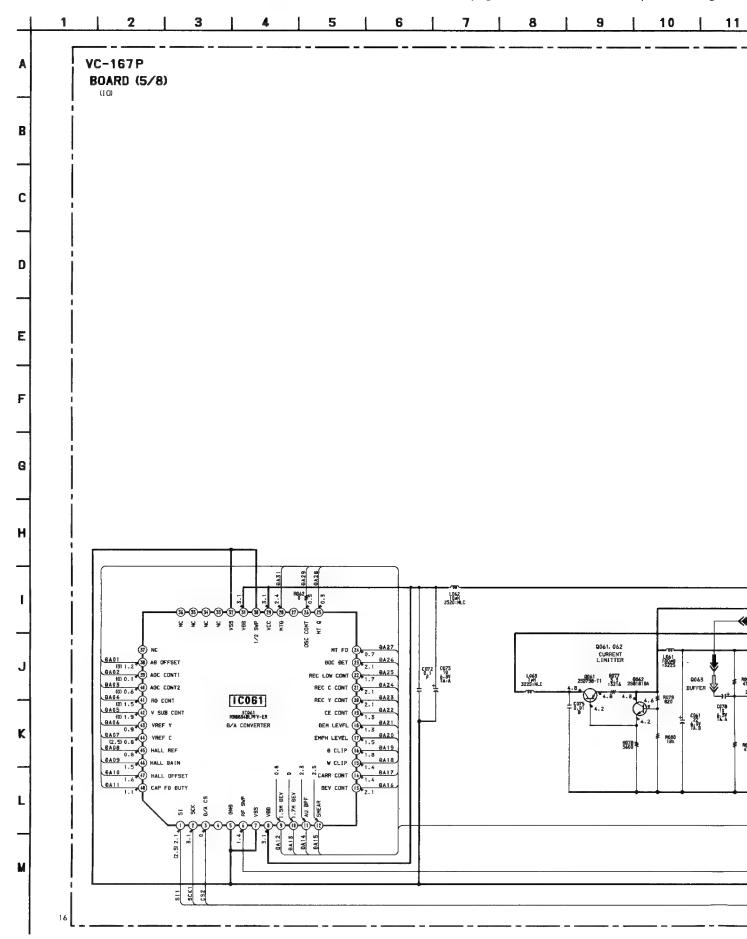
TO 6/8) 23 (SEE PAGE 4-21) TO 7/8) 24 (SEE PAGE 4-24) ≺BPF AÐJ ≺EMPH IN TO (3/8) (8) (SEE PAGE 4-12) **≺**ӨЕЕМРН ООТ ≺CAN Y IN ≺RF SWP ≺PB RF TO (6/8) (23) (SEE PAGE 4-21) TO (7/8) (24) (SEE PAGE 4 24) TO (8/8) (25) (SEE PAGE 4-31) **->>>** ≺VIÐED 3V ≺BOTH REC TO (6/8) (3) (SEE PAGE 4-21) **≺**VA PB MOĐE =>>> **≺**PB RF TO (3/8) 20 (SEE PAGE 4-12) -**€**ane TO 66/8) (3) (SEE PAGE 4-21) **∢**RP PB MOÐE **√**V HUTE ⊀RP 5V **₽**₽8 5V L113 10#H 2520:NLC **≺**PB C RF C160 B: 2012 TO (3/8) (3) (SEE PAGE 4-10) L 116 10#H 2520:NLC TO (3/8) (19) (SEE PAGE 4-12) **√**SOFT LIM DUT (L) MA142WK- (TX) C170 B: 2012 **<**∪06 KFE ON KME/M₽ 10 (6/8) (SEE PAGE 4-21) ⊀REC ATF -**√**SP/[P **⊀**LP/5P > TO (\$/8) (B) (SEE PAGE 4-12) **∢**GNÐ TO (3/8) (6) (SEE PAGE 4-10) ⊀REC € RF - VIÐED +5V > TO (3/8) (7) (SEE PAGE 4-12) ⟨REC Y RF > TO (3/8) (SEE PAGE 4-10) -<GNÐ **≺**ĐĐC ĐET RP03 RP04 RP05 ≺MT Q ≺MT FO TO (5/8) (22) -**∢**MTG RP04 ≺REC Y CONT ≺REC LOW CONT (SEE PAGE 4-17) ⊀REC C CONT

VC-167P BOARD

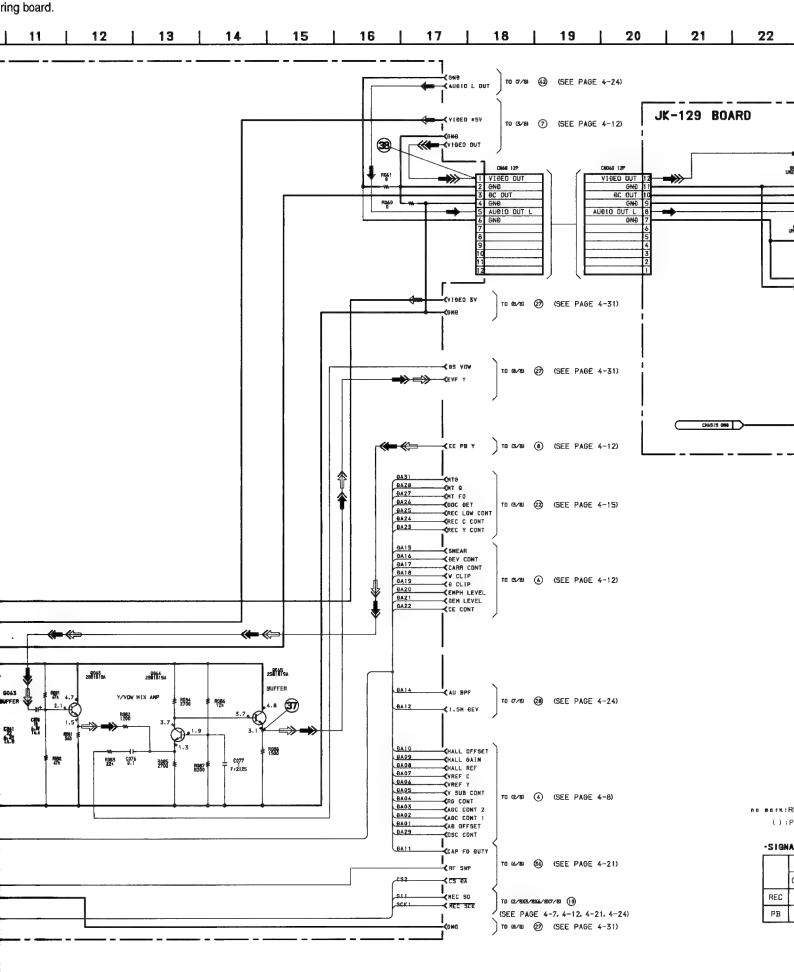


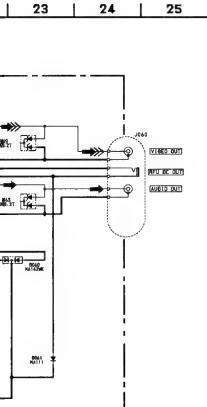
VC-167P (VIDEO 2), JK-129 (JACK) SCHEMATIC DIAGRAMS

- Ref. No. VC-167P Board; 1,000 Series, JK-129 Board; 2,000 Series -
- See page 4-35 for VC-167P BOARD printed wiring boa
- See page 4-46 for JK-129 BOARD printed wiring board

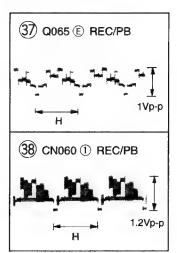


wiring board.





VC-167P BOARD



RÉC or REC/PB

AL PATH

	AUÐIO		
HROMA	Υ	Y/CHROMA	SIGNAL
→	→	→ >>>	-
\Rightarrow	∹≫	⊏⋙	1

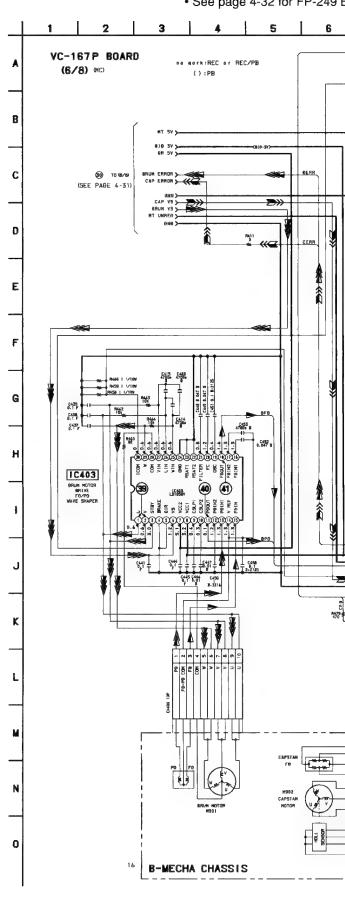
• See page 4-32 for FP-249 E

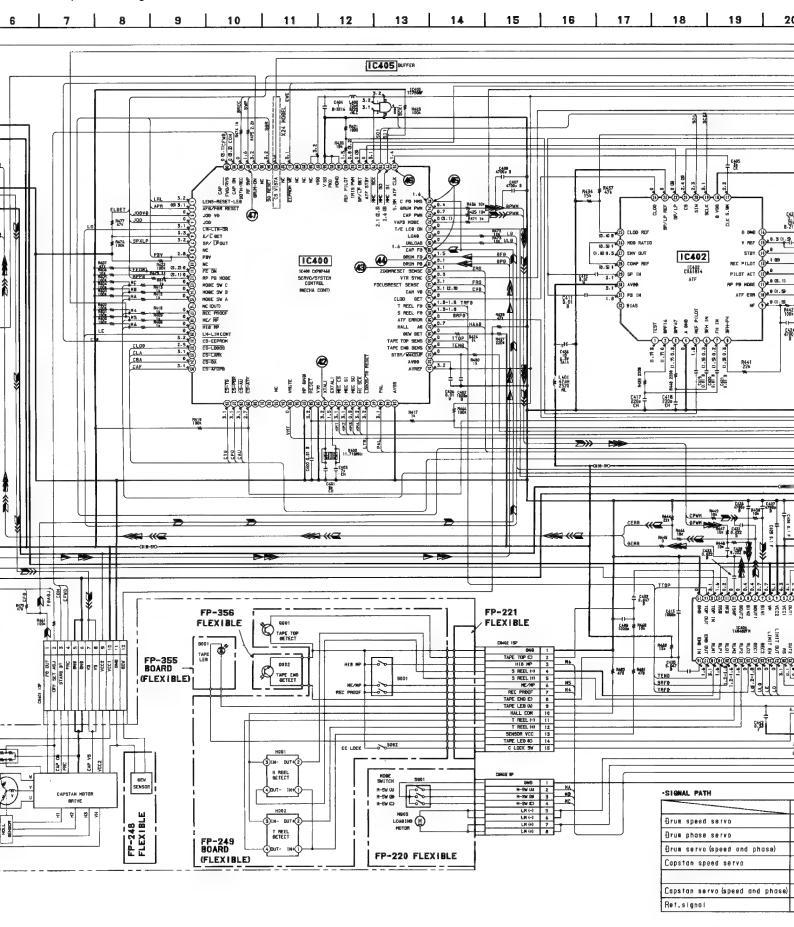
— Ref. No. VC-167P Board; 1,000 Series, FP-249 Board; 5.000 Series —

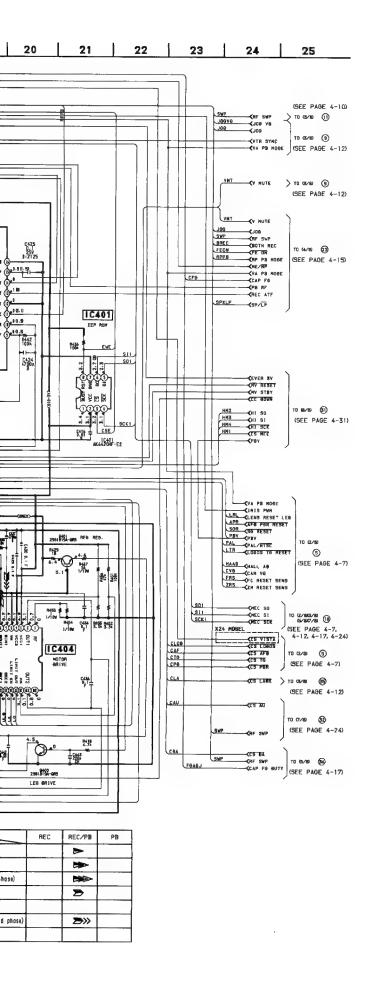
VC-167P BOARD (39) IC403 (1),(2) REC/PB (44) IC400 (67) REC/PB 1Vр-р (150Hz) 3Vp-p (300Hz) 40 IC403 11 REC/PB 45) IC400 68 ,75 REC/PB 0.6Vp-p 3Vр-р (450Hz) (1.148kHz) 46) IC400 76 REC/PB (41) IC403 (8) REC/PB 3Vр-р 3.8Vp-p (300Hz) (5.859MHz) 47) IC400 @ REC/PB 42) IC400 @ REC/PB 3Vp-p (11.718MHz) (25Hz) 43 IC400 66 REC/PB

(25Hz)

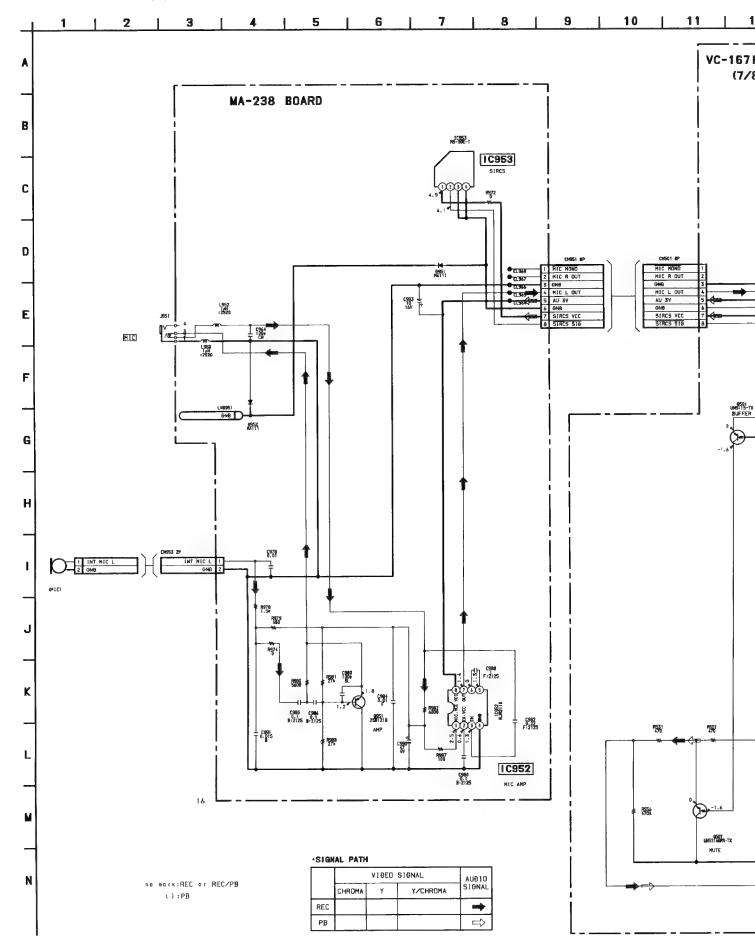
3Vp-p

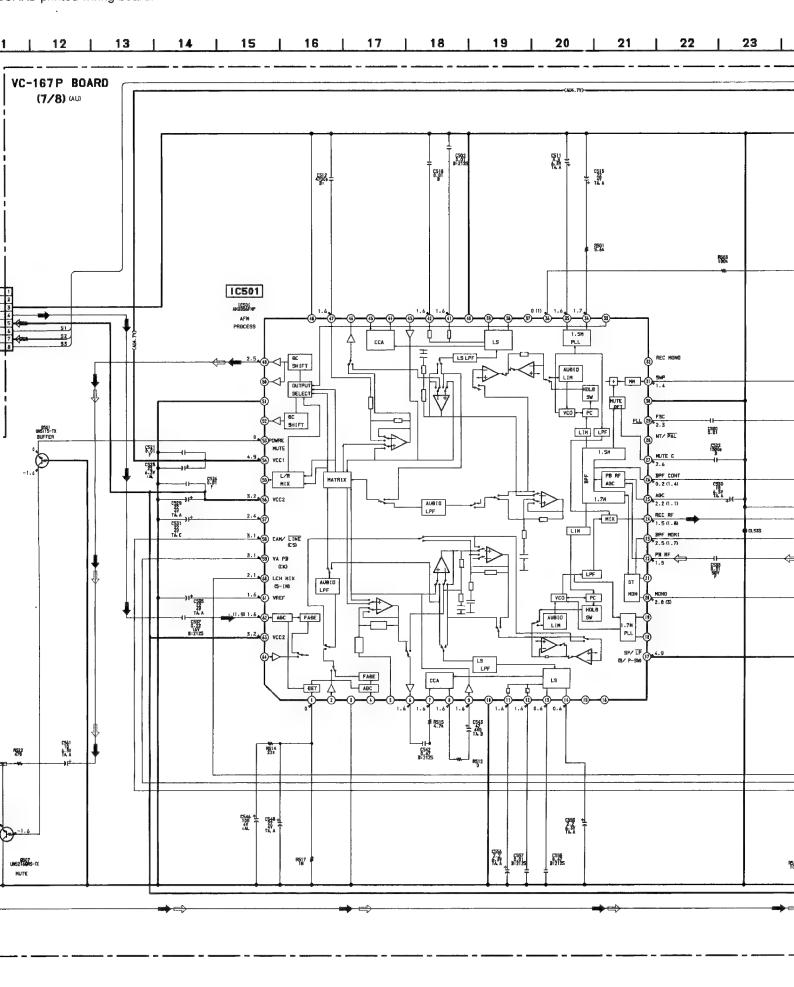


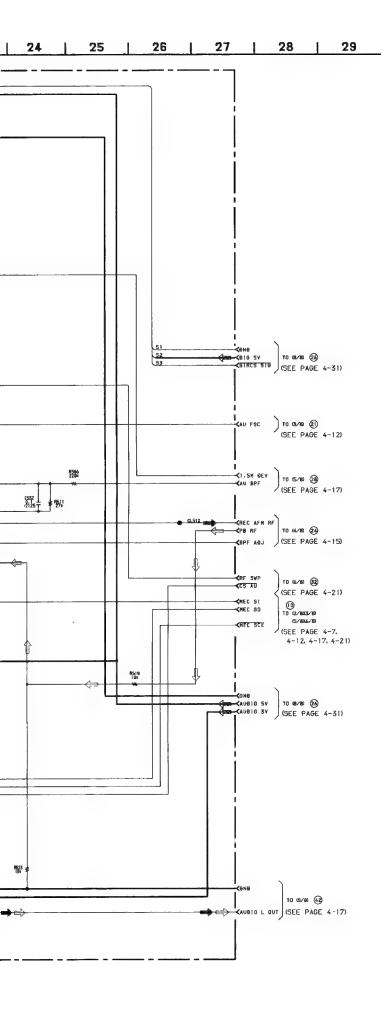




— Ref. No. VC-167P Board; 1,000 Series, MA-238 Board; 2,000 Series —

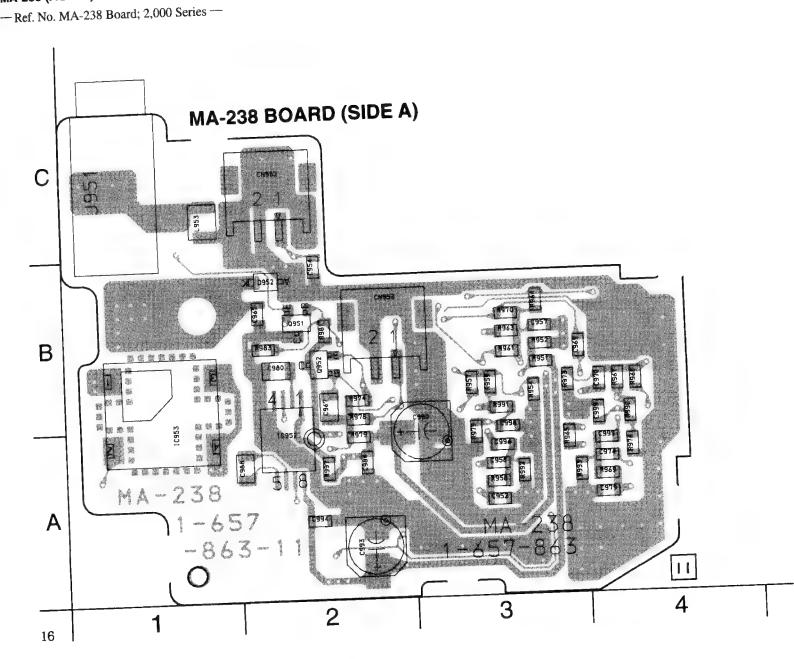




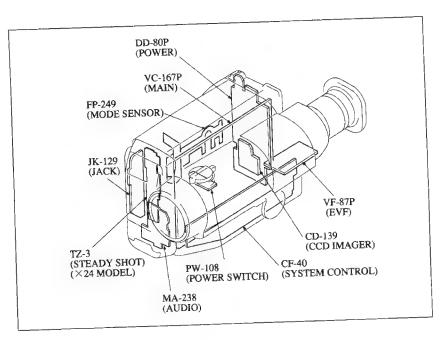


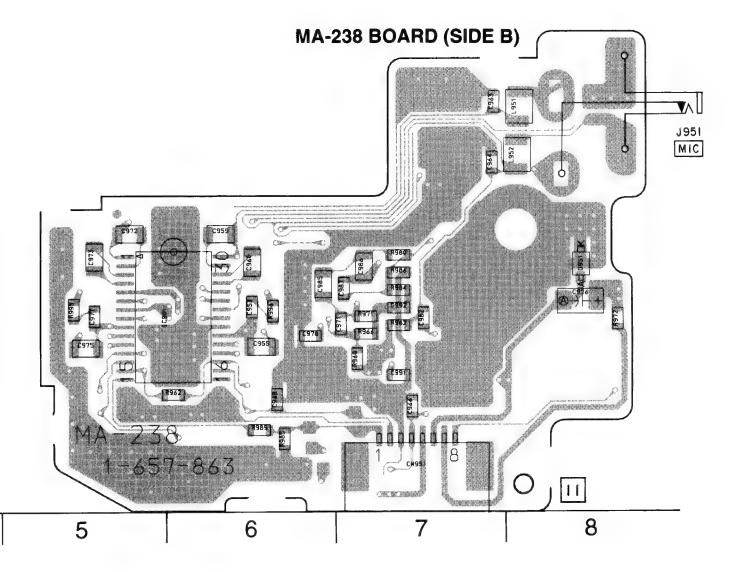
MA-238 (AUDIO) PRINTED WIRING BOARD

There are few cases that the part printed on this diagram isn't mounted in this m



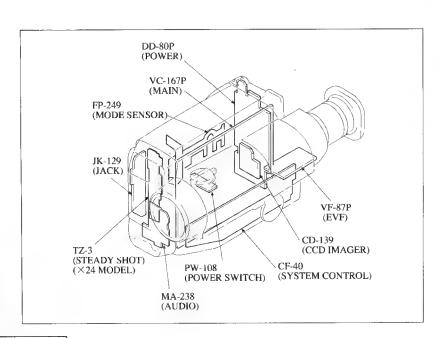
MA-238 BOARD								
C964	C-7	IC953	B-1					
C978	B6							
C980	B -2	J951	C-1					
C982	B-7							
C983	B –7	L952	C-8					
C984	A -2	L953	C-1					
C985	B-6							
C986	B –7	0951	B-2					
C988	A- 2							
C990	B-3	R972	B-8					
C991	A -7	R974	B-2					
C993	A-2	R978	B-2					
••••		R979	A-2					
CN951	A -7	R980	B-7					
CN953	B-2	R981	B –2					
0.1.0		R982	B-7					
D951	B-8	R983	B –2					
D952	B-2	R997	A-2					
1C952	A-2							

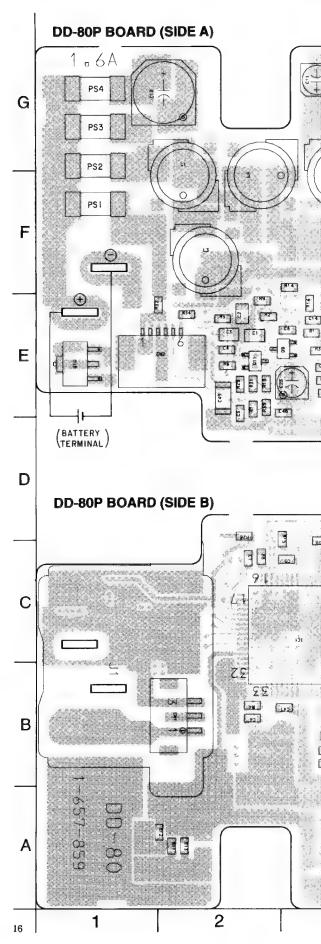




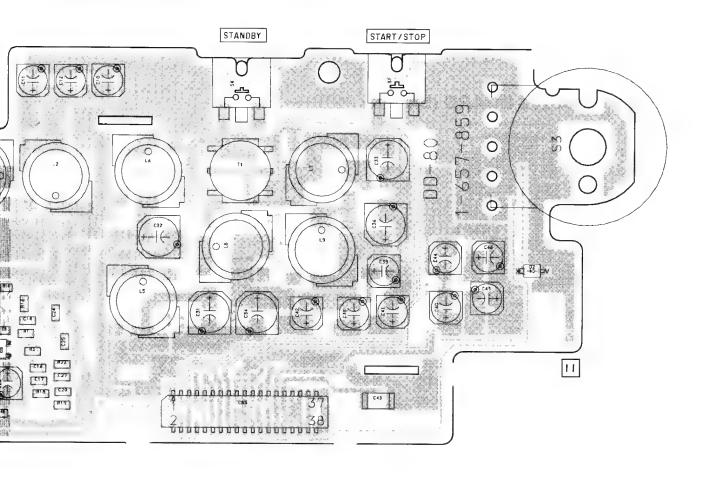
- Ref. No. DD-80P Board; 1,000 Series -

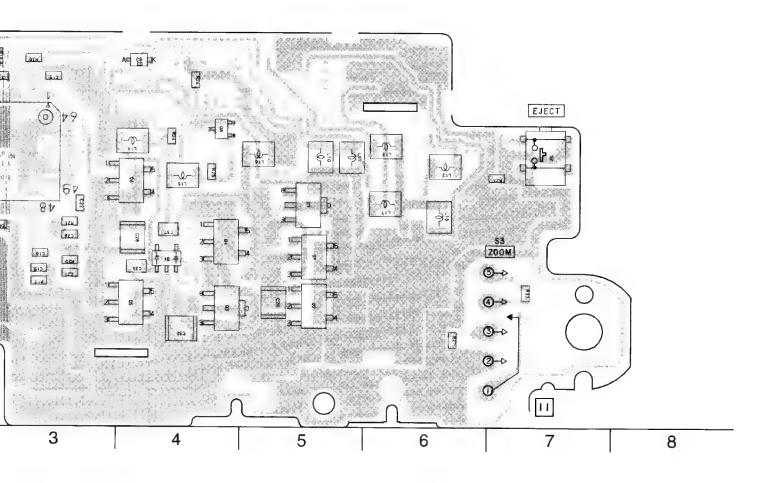
DD-80P BOARD									
C001	E2	C046	F-6	0005	B-4				
C002	E-2	C047	B-3	0006	B-4				
C003	E2	C048	E-3	0007	B -5				
C004	E-2			0008	C-4				
C005	E-2	CN003	E-5						
C006	B-2			R001	E-3				
C007	C-2	D001	B-4	R002	E-2				
C008	E-3	D002	F-7	R003	E-3				
C009	C-3			R004	B- 2				
C010	G-3	IC001	C-3	R005	E-2				
C011	G-3			R006	E –2				
C012	G-3	J001	B1	R007	E-2				
C013	G-1			R008	C-2				
C014	E-3	L001	G-2	R009	E-2				
C016	E-3	L002	G-3	R010	E-2				
C018	B-3	L003	F-2	R014	F-3				
C019	C-3	L004	F-2	R015	D –3				
C022	B-3	L005	F-4	R016	E-3				
C024	E-3	L006	G-4	R017	B-3				
C025	E-3	L007	G-5	R018	E-3				
C026	B-3	L008	F-4	R019	E-3				
C027	E-3	L009	F5	R020	B-3				
C028	B-4	L010	C-5	R021	B-3				
C029	B-5	L011	C-5	R022	E-3				
C030	A-4	L012	C-6	R023	C-7				
C031	E-4	L013	C-6	R024	C-4				
C032	F-4	L014	C-4	R025	C-4				
C033	G-6	L015	B-4	R026	C-4				
C034	E-5	L016	C-5	R027	A –6				
C035	B-4	L017	B-6	R033	B –7				
C036	F-6	L018	B-6	0001	0.0				
C037	B-4	B0000		\$001	G-6				
C038	E-5	PS002	G-1	S002	C-7				
C039	F-6	PS003	G-1	S004	G–4				
C040	E-6	PS004	G-1	T001	C 4				
C041	E-6	0001	, ,	T001	G-4				
C042	E-5	Q001	B-5						
C043	E-6 F-6	Q002 Q003	A-5 A-4						
C044		Q004	B-4						
C045	F6	0004	D-4						



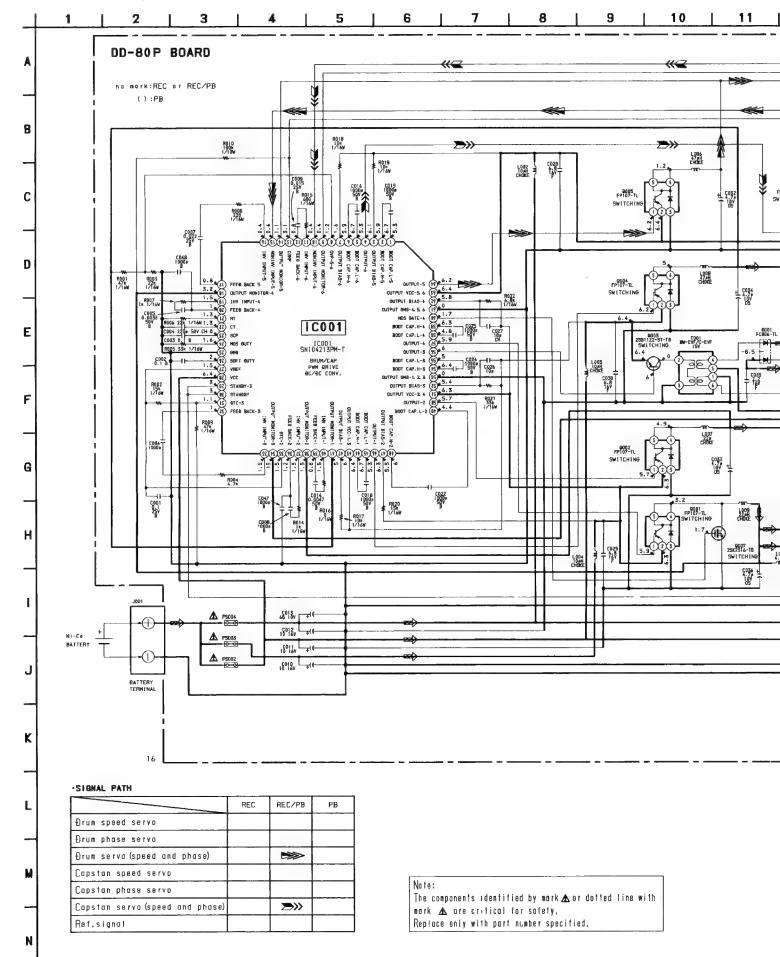


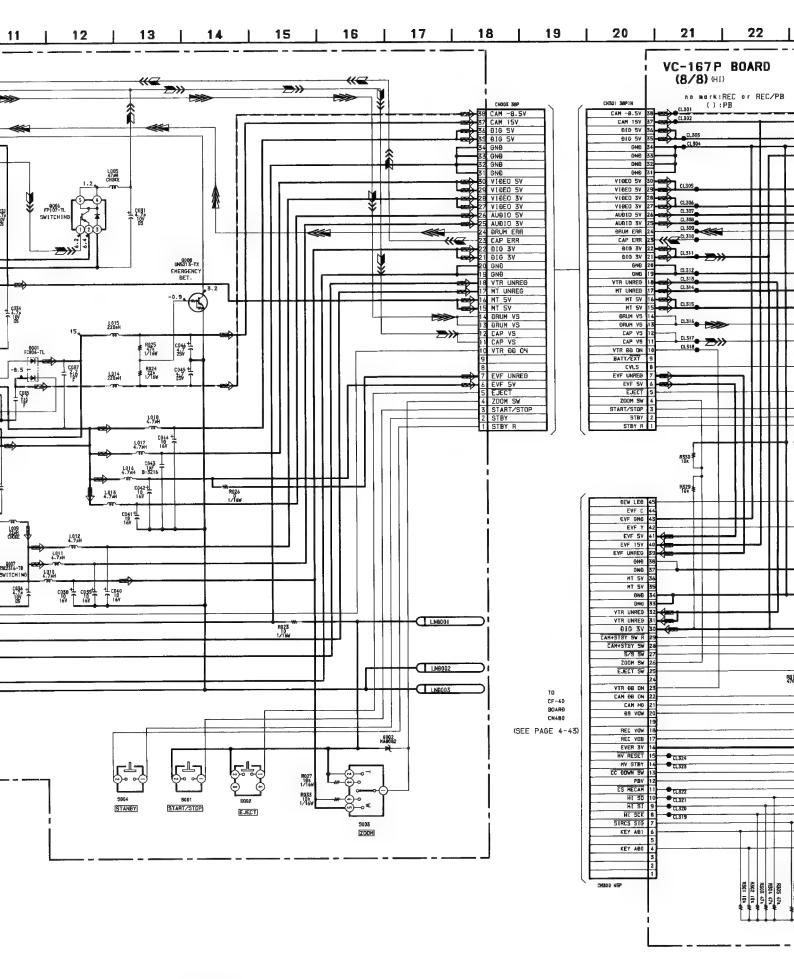
ne part printed on this diagram isn't mounted in this model.

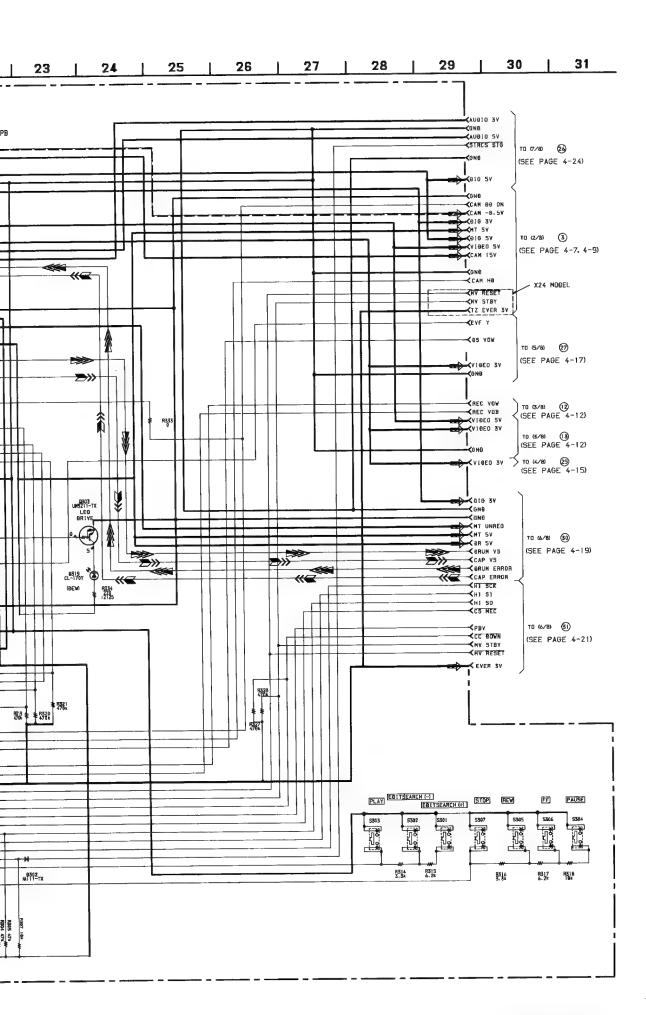




- Ref. No. DD-80P Board, VC-167P Board; 1,000 Series -

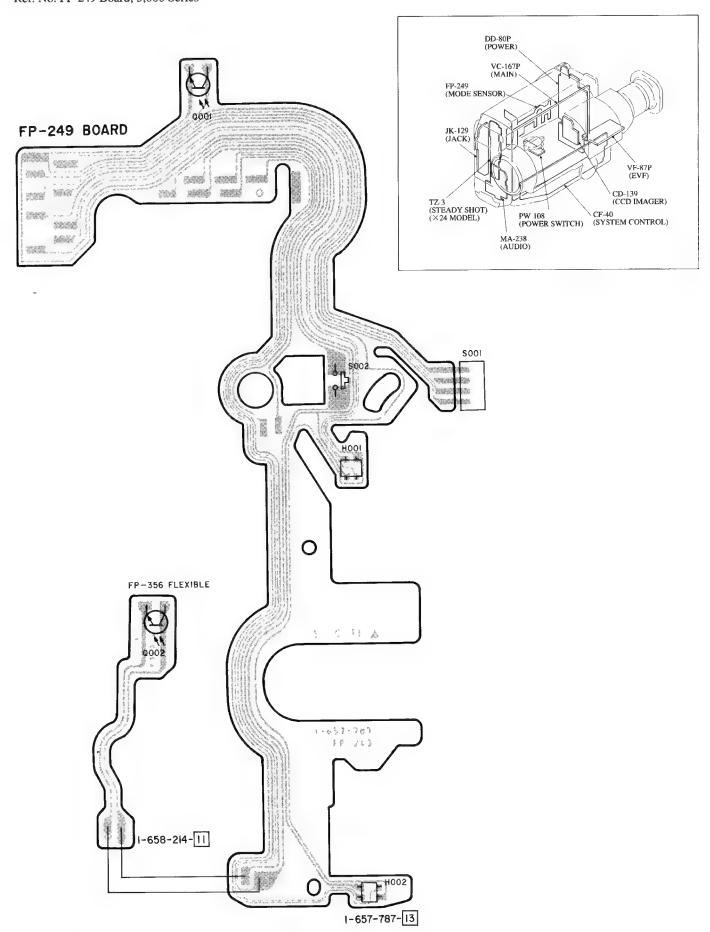






FP-249 (MODE SENSOR) PRINTED WIRING BOARD

-- Ref. No. FP-249 Board; 5,000 Series --



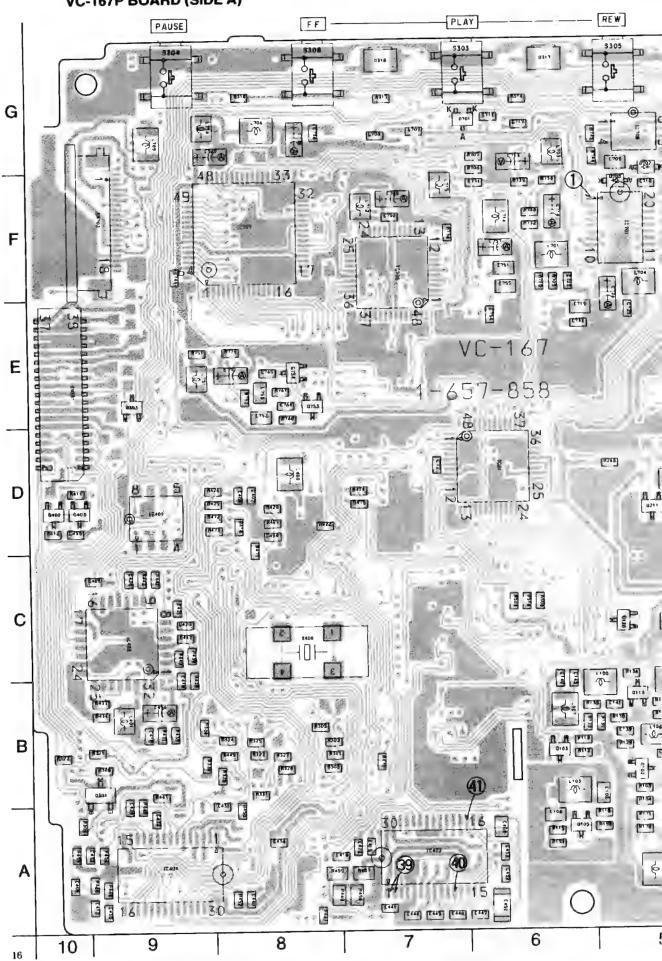
VC-167P BOARD

C061	(B)F-2	C203	(B)F-3	C417	(A)C-9	C574	(A)D-1	C760	(A) G-8	L102	(A)A-5	0123	(B)B-3
C072	(A)D-7	C204	(A)E-3	C418	(A)B-9	C575	(A) D-1	C761	(A)F-9	L103	(A)B-6	0124	(A)B-3
		1				1		1		1			
C073	(B) D-6	C205	(B)F-3	C419	(B) C-9	C576	(A)D-1	C762	(B) G-7	L104	(B)B-6	Q125	(A)B-3
C075	(A)F-2	C206	(B)F-3	C420	(A) C-9	C577	(A)D-1	C764	8–3 (A)	£105	(B)B-5	Q126	(A)C-3
C076	(B)E-2	C207	(A)E-4	C421	(A)C-9	C578	(B) D-1	C772	(A)E-8	L106	(A)B-5	Q129	(B) A-3
C077	(B)E-2	C208	(A)E-4	C423	(A) A-7	C602	(A)F-3			L107	(A)B-6	0130	(B) A-3
								CNICCO	(B) F-1			0131	(B)B-3
C078	(B)E-2	C209	(B)F-4	C424	(A) C-9	C603	(A)F-3	CN060		L108	(A)B-5		
C101	(B) A-4	C210	(A)F-3	C425	(B)B-9	C604	(A)G-2	CN101	(B) A-5	L109	(A)B-5	0202	(B)F-4
C102	(B)A-5	C211	(A)F-3	C426	(B) A-9	C605	(B)F-2	CN102	(A)B-1	L113	(B)B-5	0206	(A)E-4
C103	(B) A-4	C212	(B)F-4	C427	(B) A-9	C606	(A)F-3	CN300	(B) B-8	L114	(B)B-3	0212	(A)C-3
C104	(B) A-5	C213	(B)F-3	C428	(A) A-9	C607	(A)F-3	CN301	(A)E-10	L115	(B)B-3	0213	(A)C-4
C106	(A) A-6	C214	(B)F-3	C429	(B) A-9	C608	(A)F-3	CN400	(B) A-6	L116	(A)C-3	0214	(A) C-4
		1		1						1		1	
C107	(B)B-6	C215	(A)E-3	C430	(B) A-9	C609	(A)G-2	CN401	(B) A-7	L118	(A)C-3	0215	(B) E-5
C108	(B) A-6	C216	(B)G-2	C431	8-A(A)	C610	(A)G-2	CN402	(B) A-9	L119	(A)A-4	0216	(A) D-2
C109	(B) A-6	C217	(B)G-2	C432	(A)A-9	C611	(B)G-3	CN403	(B) A-3	L120	(B)B-4	0217	(A)D-2
C110	(B) A-6	C218	(A)D-3	C433	(A) A-9	C612	(B)G-3	CN501	(B) B-1	L121	(A)B-4	0218	(B) D-2
C111	(A) A-4	C219	(B)F-4	C434	(B)B-8	C613	(B)F-5	CN601	(B) G-3	L202	(B)F-3	0219	(A) C-3
C112	(A) A-4	1		C435		C614	(B)F-4	CN701	(B)F-5	L203	(B)E-4	0221	(A)F-5
		C220	(B)E-5		(A) A-9	1						1	
C113	, (B) A-4	C223	(A)D-4	C436	8-A(A)	C615	(B)F-4	CN702	(A)F-9	L207	(A)E-5	0222	(A)D-2
C114	(A)A-4	C224	(A)E-5	C437	(B) A-7	C616	(A)G-4			L210	(B)D-3	0223	(B)D-2
C115	(A) A-5	C225	(A)E-5	C438	(B) A7	C618	(B)G-3	D101	(B) B-4	L211	(B)D-4	0224	(B)D-2
C116	(B) A-5	C226	(B) D-5	C439	(B) A-7	C619	(B)G-3	D102	(B) B-3	L212	(A)C-5	0226	(A)F-4
C117	(A) A-5	C227	(B) D-5	C441	(A) A-7	C620	(A) G-2	D103	(A) C-4	L213	(B)F-3	0303	(A)E-9
				1				1		1			
C118	(A) A-5	C228	(A)E-5	C442	(B) A-10	C701	(B)G-5	D201	(B) E-5	L214	(B)D-6	0400	(B) A-9
C119	(B) A-5	C229	(B)D-5	C443	(B) A –9	C702	(B)G-5	D202	(A)F-3	L400	(A)D-8	Q401	(B) A-9
C120	(B) A-5	C230	(B)D-5	C444	(A) A-7	C703	(B)G-5	D203	(A) C-4	L401	(A)B-9	Q501	(B) A-2
C121	(B)B-5	C231	(A)E-3	C445	(A) A-7	C704	(B)F-5	D302	(B) B-8	L570	(B)E-2	Q507	(B) A-2
C122	(B)B-5	C232	(A)E-3	C446	(A) A-7	C706	(B)F-5	D319	(B) G-8	L601	(B)G-2	Q 570	(A) C-1
C123	(B)B-5	C234	(A) D-4	C447	(A) A-6	C707	(B)G-5	D701	(A) G-6	L602	(B)G-4	0601	(A)F-3
		1		1				1		l.		I.	
C124	(A)B-5	C235	(A)D-4	C448	(B) A-6	C708	(B)G-5	D702	(A) G-5	L603	(A)G-3	0602	(B)F-2
C125	(A)B-5	C236	(A) D-4	C449	(B) A-7	C710	(A)F-5	D703	(A)F-5	L701	(A)F-6	Q 603	(B) G-3
C127	(B)B-5	C237	(B) D-4	C450	(A) A –6	C711	(A)G-6	D705	(B) G-8	L703	(A)G-6	0701	(B)G-5
C128	(B)B-5	C238	(B) D-3	C451	(B) A-6	C712	(B)G-6	D706	(B) G-6	L704	(A)F-5	Q 703	(B)G-10
C129	(B)B-5	C240	(A)E-3	C452	(A) A-6	C713	(A)G-6	IC707	(A) IF-8	L706	(A)G-8	Q 704	(B)G-10
C130	(A)B-5	C242	(A)C-5	C453	(A) A-6	C714	(A)F-6			L707	(A)G-7	0705	(B) G-9
C134	(B)B-4	C243	(B)F-3	C456	(A)B-9	C715	(B)F-6	IC061	(A) D-6	L708	(A)G-7	Q706	(B) G-9
C135	(A) A-4	C244	(B)D-4	C458	(A) A-6	C717	(A)G-6	IC101	(B) B-5	L709	(A)G-9	0750	(B)E-9
		4						1				1	
C1 36	(A)B-4	C246	(A)D-4	C502	(A) A-2	C718	(B)G-6	IC201	(B) E-4	L710	(B)F-10	0752	(B) E-8
C137	(A)B-4	C247	(B) D-2	C511	(A) A-3	C719	(A)E-6	1C204	(A)F-4	L712	(A)F-7	0753	(A)E-8
C138	(A)B-5	C248	(A)C-2	C512	(A) A-2	C720	(B)F-5	IC400	(B) C-8	L714	(A)F-6	R060	(A)F-2
C139	(A)B-5	C249	(A)C-2	C515	(A) A-3	C722	(A)F-6	IC401	(A) D-9	L715	(A)F-7	R061	(B)F-2
C140	(A)B-6	C252	(B)D-5	C518	(A) A-2	C724	(B)G-6	IC402	(A) C-9	L716	(A)G-9	R062	(B) D-6
C141	(A)B-5	C254	(A)F-5	C520	(B) C-2	C725	(A)E-5	FC403	(A) A-7	L751	(A)E-9	R063	(A) E-1
				I				1		I .		R077	(A)F-2
C142	(A)B-5	C256	(A) D-3	C521	(B) B-2	C726	(A)F-5	iC404	(A) A-9	L752	(A)E-8		
C143	(A)B-6	C257	(A)F-4	C522	(B)B-3	C727	(B)F-5	1C405	(B) C-9			R078	(A)F-2
C148	(B)B-3	C260	(B) D-6	C523	(B)B-2	C728	(B)E-5	IC501	(A)B-2	0060	(A)E-1	R079	(A)F-2
C149	(B)B-3	C261	(A)C-3	C526	(A)B-1	C729	(B)E-5	IC570	(B) D-2	0061	(A)F-2	R080	(A)F-2
C150	(B)B-3	C263	(B)D-2	C529	(A)B-2	C730	(A)G-5	IC601	(A) G-3	0062	(A)F-1	R081	(B)E-2
C152	(A)B-3	C265	(B) D-3	C530	(B) A-3	C731	(A)F-6	IC602	(A)F-2	0063	(B)E-2	R082	(B)E-2
C153	(B)B-4	C266	(B) D-3	C530	(A) C-1	C732	(B)E-6	10603	(B) G-4	0064	(A)E-2	R083	(B)E-2
		1										1	
C154	(B)B-3	C400	(B) C-8	C532	(B)B-2	C734	(B)G-6	1C604	(A) G-4	0065	(A)E-2	R084	(A)E-2
C155	(B)B-3	C401	(B) C-8	C533	(B)B-3	C735	(A)G-8	1C701	(A)F-5	Q101	(A) A-5	R085	(B)E-2
C156	(B)B-4	C402	(B)B-9	C535	(B)B-2	C736	(A)G-8	IC702	(B)F-6	Q102	(A)B-5	R086	(A)D-2
C157	(B) C-3	C403	(B) C-8	C537	(B)B-2	C739	(B)G-7	IC703	(B)E-6	Q103	(A)B-6	R087	(B)E-2
C160	(B)B-5	C404	(B) D-8	C542	(A) C-1	C740	(B) G-8	IC704	(B)F-6	0104	(B)B-6	R088	(B)E-2
		1						1		1			(B)E-2
C162	(B) A-3	C405	(A)C-9	C543	(A) C-2	C741	(B) G-9	10705	(A)F-7	0105	(A)A-6	R091	
C163	(B) A-3	C406	(B) C-9	C546	(B) C-1	C742	(B) G-9	1C706	(B) F-8	Q106	(B) A-6	R092	(B)E-2
C164	(A)A-3	C407	(A)D-8	C548	(A) C-2	C745	(B)E-8	IC707	(A)F-8	Q107	(B) A-6	R101	(B)B-6
C165	(A) A-3	C408	8-(A)	C550	(B) C-2	C746	(B)F-9	10708	(A)G-5	0108	(B)B-4	R102	(A)B-4
C166	(A)B-3	C409	(A)A-10	C556	(A) C-2	C749	(A)F-7	10709	(B) G-9	0109	(B)B-4	R103	(A)B-5
C167	(A)B-3	C411	(B)B-9	C557	(A) C-3	C750	(A)F-7	IC710	(B) G-7	Q110	(A)B-4	R104	(A) A-5
C168	(B) A-4	C412	(B)B-9	C558	(B) C-2	C751	(A)F-6	.0,10	(2) 🗸 -)	0111	(A)B-4	R105	(A)B-5
						1		1.00*	(A) = 4				
C169	(A)B-4	C413	(A) A-9	C561	(B) A-2	C755	(A)F-6	L061	(A)E-1	0112	(A)B-5	R106	(A)B-5
C170	(A) C-4	C414	8-A(A)	C571	(A) D-1	C757	(A)F-6	L062	(B) D-6	0113	(A)B-5	R107	(B)B-5
C171	(B) C-6	C415	(A) A-7	C572	(A) D-1	C758	(B)E-6	L063	(A) G-2	0114	(B)B-6	R108	(B)B-5
C202	(A)E-3	C416	(B)D-9	C573	(A) E-1	C759	(B)E-7	L101	(A)A-4	0120	(A)C-5	R109	(B)B-5
								•					

R110	(B)B-6	R191	(B)B-6	R284	(B)D-2	R448	(A) A-9	R620	(B)G-2
R111	(B)B-5	R192	(B) A-6	R286	(B) D-2	R449	(A)B-8	R621	(B)G-2
R112	(A)B-6	R193	(B) A-6	R287	(B) D-3	R450	8-A(A)	R623	(A)F-4
1		1		1		1			
R113	(A)B-6	R194	(A) A-6	R289	(B) D-3	R451	(B) A-8	R628	(A)F-4
R114	(B)B-5	R195	(A) A-5	R290	(A)D-5	R452	8-A(A)	R629	(A)F-4
R115	(B)B-5	R196	(B) A-6	R291	(A)D-3	R453	(B) A-8	R630	(B) G-3
1	(A)B-4	1		1		1		1	
R116		R197	(B) B-3	R301	(A)B-8	R454	(B) A-8	R631	(A) G-3
R117	(B)B-4	R201	(B)F-3	R302	(A)B-8	R455	(A)A-10	R632	(A)F-3
R118	(A) A-5	R202	(B)F-3	R303	(A)B-8	R456	(A)A-9	R701	(B)G-5
R119	(A) A-6	R203	(B)F-3	R304	(B)B-8	R458	(A) A-7	R702	(B) G-5
1									
R120	(A)B-4	R204	(A)E-4	R305	(A)B-8	R459	8-A(A)	R703	(B)F-5
R121	(A)B-4	R205	(B)G-1	R307	(B) B-8	R460	8-A(A)	R704	(B)G-5
R122	(A)B-4	R207	(A)F-5	R314	(A)G-6	R461	8-A(A)	R706	(A)G-6
R123	(A)B-4	R210	(A)E-5	R315	(A) G-2	R462	(B) A-7	R707	(A)G-6
1				1		1		i	
R125	(A)B-5	R211	(A)E-4	R316	(A)G-5	R463	(B) A-7	R708	(B)F-9
R126	(A)B-4	R212	(B)F-4	R317	(A)G-7	R464	(B) A-7	R709	(A)F-6
R127	(A)B-5	R213	(B)F-4	R318	(A)G-8	R465	(B) A-6	R710	(A)F-6
R128	(A)B-5	R214	(B) G-1	R319	(B)B-9	R466	(B) C-9	R713	(B) G-8
						i		1	
R129	(A)B-5	R215	(B)G-1	R320	(B) B-9	R467	(B) A-9	R714	(B)G-7
R130	(A)B-5	R216	(B)G-2	R321	(A)B-9	R468	(A)A-9	R715	(B)G-9
R131	(A)B-5	R218	(A)E-3	R327	(A)B-8	R469	(A)A-9	R716	(B) G-9
R132	(A)B-6	R219	(B) D-4	R328	(A)B-8	R471	(A) D-8	R717	(B) G-9
				1				7	
R133	(A)B-6	R220	(B)D-4	R329	(A)B-8	R472	8– D (A)	R719	(B)E-8
R134	(A)B-5	R221	(A)D-3	R330	(A)B-9	R473	(A) D-8	R720	(B)E-8
R135	(A)B-5	R222	(B)E-4	R333	(B)D-9	R474	(A)D-7	R721	(B)E-8
1				1		1		1	
R136	(A)B-5	R223	(A)F-4	R334	(B) G-8	R475	(A) D-7	R722	(B)F-9
R141	(B)B-4	R224	(B)E-5	R400	(B)B-7	R476	(B) C-7	R723	(B)F-9
R149	(B) C-4	R225	(B) D-2	R401	(B)B-7	R477	(B) C-7	R724	(B)E-9
R150	(B)B-3	R227	(A)C-3	R402	(B)B-7	R478	(B) C-7	R725	(B)E-6
		1		ł		1		1	
R152	(B)B-4	R228	(A)F-5	R403	(B) C-7	R479	(A)B-7	R726	(B)G-7
R153	(A)B-3	R229	(A)D-4	R404	(B) C-7	R481	(B) A-9	R727	(B)G-7
R154	(A)B-3	R230	(B) D-4	R405	(B) C-7	R482	(B) A-9	R728	(B)G-7
R155	(A)B-3	R232	(B)E-5	R406	(B) C-7	R501	(A) A-3	R729	(B)G-6
1				Į.		1		l	
R156	(B)B-3	R234	(B)E-4	R407	(B) C-7	R503	(A) C-6	R730	(B)F-7
R157	(B)B-3	R235	(B) D-4	R408	(B)B-7	R506	(A) C-6	R732	(A)F-6
R158	(B)B-3	R236	(A)D-3	R409	(B) B-7	R511	(B)B-3	R733	(A)F-6
R159	(B) B-3	R238	(B) D-5	R410	(B)B-7	R512	(A) C-2	R734	(A)F-6
1				1		1			
R160	(A)B-4	R239	(A)E-4	R411	(A)D-10	R514	(B) C-2	R735	(A)F-6
R161	(A)B-4	R241	(B)E-4	R412	(B) C-7	R515	(A) C-2	R737	(B)F-9
R162	(A)B-4	R243	(B) D-3	R413	(B) C-7	R517	(A) C-2	R740	(A)G-5
R163	(A)B-4	R247	(A) D-2	R414	(B) C-7	R519	(A) A-3	R741	(A)G-5
1				E .		l			
R164	(A)B-4	R248	(A)D-4	R417	(B) C-8	R522	(B) A-2	R742	(A)G-5
R165	(B)B-4	R249	(B) D-3	R418	(A) D-8	R523	(A)B-3	R743	(A)G-5
R166	(A)B-4	R254	(A)C-4	R419	(B) C-7	R531	(B) A-1	R744	(A)G-5
R167	(A) B-4	R255	(A) C-4	R420	(A) D-8	R556	(B) A-1	R745	(A)G-5
1				1				1	
R168	(A)B-4	R256	(B)D-2	R421	8-d(A)	R570	(B) C-1	R751	(A)E-9
R169	(A)B-3	R257	(B)D-2	R422	(A)D-8	R571	(A)D-2	R756	(8)E-8
R170	(A)A-5	R259	(A)D-3	R423	(B) D-9	R575	(A)D-1	R757	(A)E-8
R171	(A) A-5	R260	(A) D-4	R424	(B) C-9	R581	(B) D-1	R758	(B)G-9
		1		1		1		1	
R172	(B) A-5	R261	(A)D-2	R425	8-Q(A)	R601	(A)F-3	R759	(B)G-9
R173	(B) A-5	R262	(A)C-2	R426	(A)D-8	R603	(A)F-3	R760	(A)E-8
R176	(B) C-3	R265	(B) D-2	R427	(B) C-9	R604	(A)F-3	R775	(A)E-8
R177	(A) C-3	R266	(A)E-3	R428		1			002
1				1	(B) C-9	R605	(A) G-3		
R178	(B) A-3	R267	(B) D-4	R429	(B) A-9	R606	(B)F-3	S301	(A)G-1
R179	(B) A-3	R268	(B) D-2	R430	(B)B-8	R607	(A)G-2	S302	(A)G-3
R180	(A) A-3	R270	(B) D-2	R434	(A)B-9	R608	(A)G-2	\$303	(A)G-6
1		1		1				1	
R181	(A) A-3	R271	(A) D-2	R436	(B)D-9	R609	(A) G-2	\$304	(A)G-9
R182	(A) A-4	R272	(B)D-2	R437	(A)B-9	R610	(A)G-2	S305	(A)G-5
R183	(A) A-3	R273	(A)C-3	R439	(A) C-9	R611	(B)F-2	S306	(A)G-8
R184	(A)B-4	R274	(A)C-3	R440	(A) C-9	R612	(A)F-3	\$307	(A) G-4
1				1		1		330/	(A/O-4
R185	(B) A-3	R276	(A) C-3	R441	(A) C-9	R613	(A)F-3		
R186	(B) A-3	R277	(A)C-3	R442	(A) C-9	R614	(A)F-3	X400	(A)C-8
R187	(B) A-3	R279	(B)C-3	R444	(B) A-10	R615	(B)F-3	X701	(B)G-6
R188	(B)B-6	R281	(B) D-3	R445	(B)B-10	R616	(A)F-3	X702	(B)G-8
1		1		1		t		1/02	\D/U-0
R189	(B)B-6	R282	(B) D-3	R446	(B) A-10	R618	(B)F-2		
R190	(B) A-6	R283	(B)D-3	R447	(A)B-9	R619	(B) G-2		

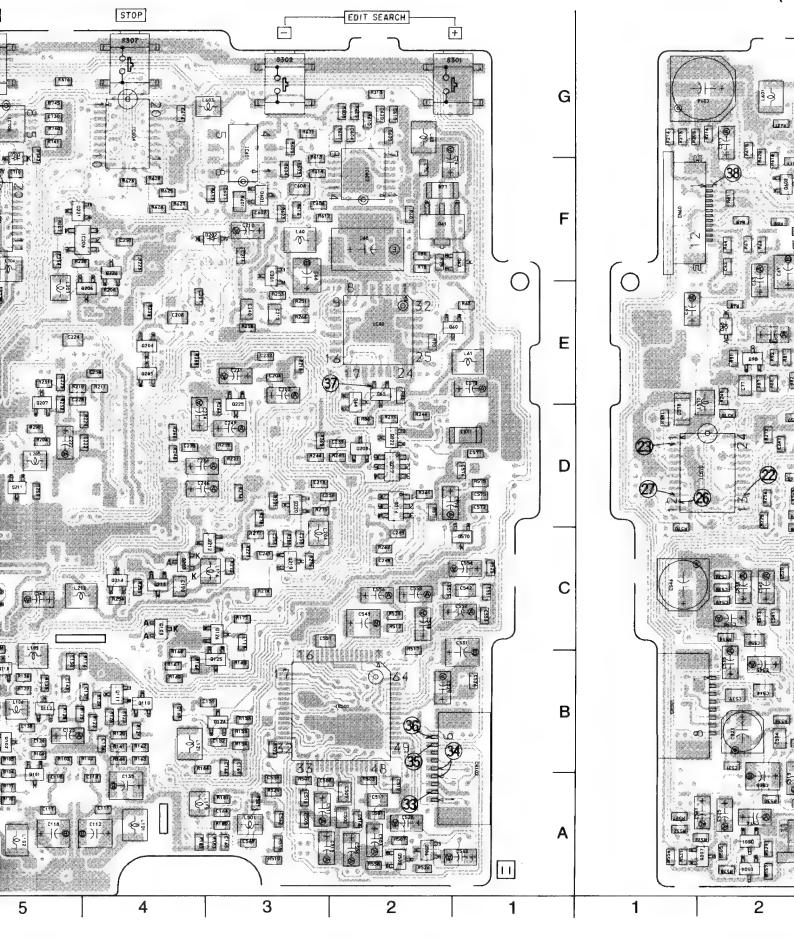
— Ref. No. VC-167P Board; 1,000 Series —

VC-167P BOARD (SIDE A)

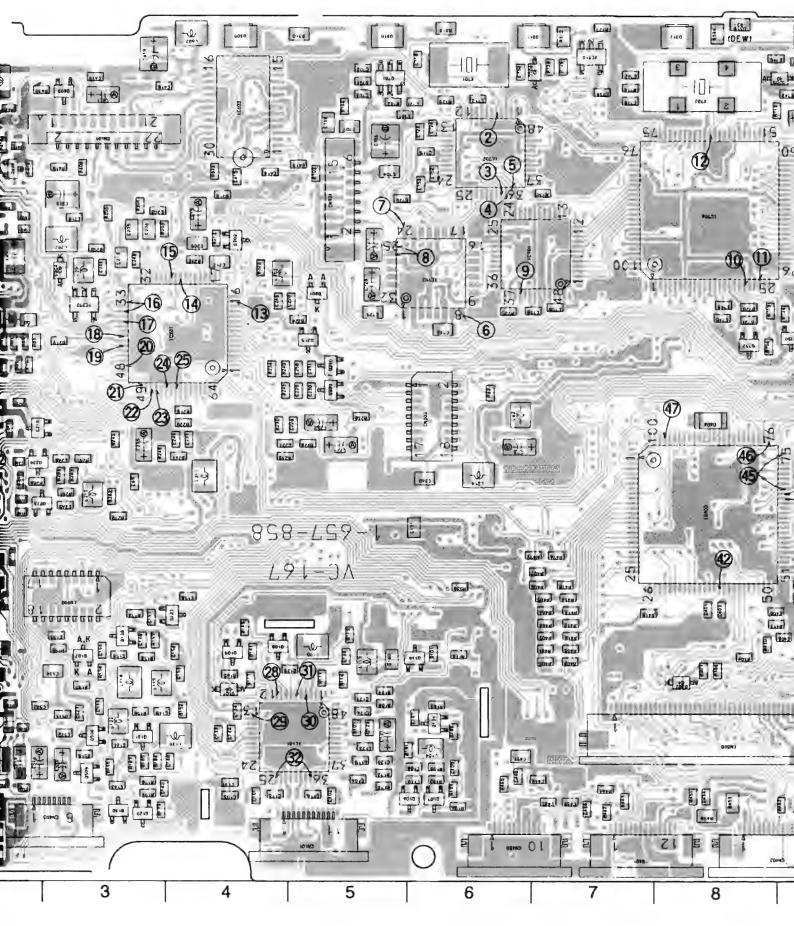


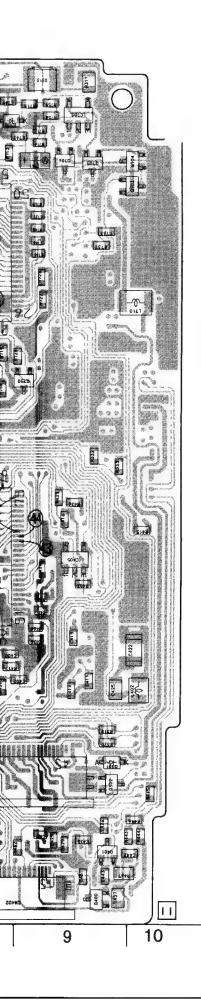
in this model.

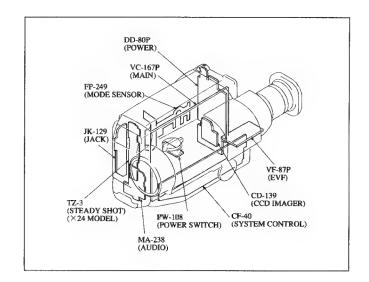
VC-167P BOARD (S



(SIDE B)





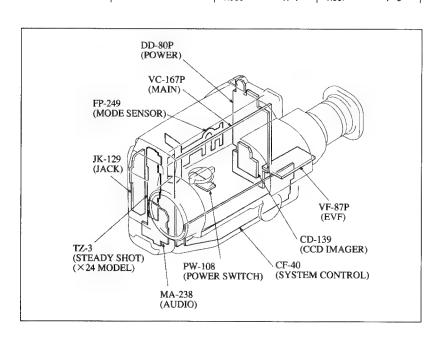


CF-40 (SYSTEM CONTROL), PW-108 (POWER SWITCH) PRINTED WIRING BOARDS

- Ref. No. CF-40 Board, PW-108 Board; 2,000 Series -

CF-40 BOARD				
	40	D0		

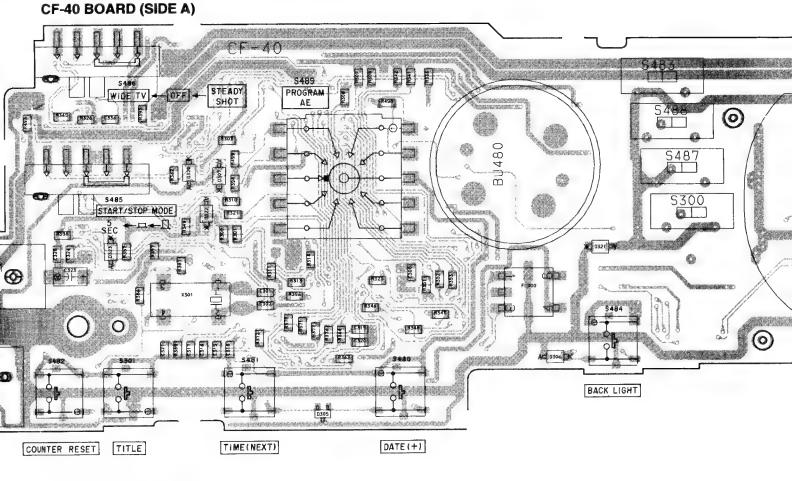
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C300 F-4 D312 B-7 R301 F-3 R341 G-4 R392 C-2 C301 E-3 D314 A-5 R303 G-3 R342 G-4 R393 C-2 C302 E-3 D315 A-4 R304 B-6 R343 A-2 R394 F-3 C303 B-3 D316 B-6 R305 F-10 R345 C-5 R395 G-2 C304 B-3 D318 B-2 R306 B-6 R346 E-4 R396 E-3 C305 B-3 D318 B-2 R307 G-4 R350 C-5 R397 F-2 C306 B-5 D321 F-6 R308 G-4 R351 F-4 R398 F-2 C306 B-5 D321 F-6 R308 G-4 R355 F-5 R399 B-3 C310 B-5 D322 F-7 R311 F-3 R355 <td< td=""><td>BU480</td><td>F-5</td><td>D304</td><td>B-7 </td><td>0305</td><td>C-9</td><td>R339</td><td>A-2</td><td>R389</td><td>E-3</td></td<>	BU480	F-5	D304	B-7	0305	C-9	R339	A-2	R389	E-3
C301 E-3 D314 A-5 R303 G-3 R342 G-4 R393 C-2 C302 E-3 D315 A-4 R304 B-6 R343 A-2 R394 F-3 C303 B-3 D316 B-6 R305 F-10 R345 C-5 R395 G-2 C304 B-3 D318 B-2 R307 G-4 R350 C-5 R396 F-2 C306 B-5 D321 F-6 R308 G-4 R351 F-4 R398 F-2 C306 B-5 D323 F-2 R309 G-4 R352 F-5 R399 B-3 C310 B-5 D324 D-2 R310 F-3 R353 F-5 R490 C-2 C311 B-5 D324 D-2 R310 F-3 R353 C-5 R496 C-1 C311 B-5 D327 E-9 R311 F-3 R356 <td< td=""><td></td><td></td><td>D310</td><td>A-1</td><td>R300</td><td>F-3</td><td>R340</td><td>A-2</td><td>R390</td><td>B-3</td></td<>			D310	A-1	R300	F-3	R340	A-2	R390	B-3
C302 E-3 D315 A-4 R304 B-6 R343 A-2 R394 F-3 C303 B-3 D316 B-6 R305 F-10 R345 C-5 R395 G-2 C304 B-3 D317 B-5 R306 B-6 R346 E-4 R396 E-3 C305 B-3 D318 B-2 R307 G-4 R350 C-5 R397 F-2 C306 B-5 D321 F-6 R308 G-4 R351 F-4 R398 F-2 C308 B-5 D322 F-2 R309 G-4 R351 F-4 R398 F-2 C310 B-5 D324 D-2 R310 F-3 R353 F-5 R490 C-2 C311 B-5 D325 B-7 R311 F-3 R355 C-5 R495 D-1 C312 C-5 D326 B-7 R312 B-4 R355 <td< td=""><td></td><td></td><td>D312</td><td>B-7</td><td>R301</td><td>F-3</td><td>R341</td><td>G-4</td><td>R392</td><td>C-2</td></td<>			D312	B-7	R301	F-3	R341	G-4	R392	C-2
C303 B-3 D316 B-6 R305 F-10 R345 C-5 R395 G-2 C304 B-3 D317 B-5 R306 B-6 R346 E-4 R396 E-3 C305 B-3 D318 B-2 R307 G-4 R350 C-5 R397 F-2 C306 B-5 D321 F-6 R308 G-4 R351 F-4 R398 F-2 C308 B-5 D323 F-2 R309 G-4 R352 F-5 R399 B-3 C310 B-5 D324 D-2 R310 F-3 R353 F-5 R490 C-2 C311 B-5 D324 D-2 R310 F-3 R353 F-5 R490 C-2 C311 B-5 D326 B-7 R311 F-3 R355 C-5 R495 D-1 C312 C-5 D326 B-7 R312 B-4 R355 <td< td=""><td></td><td>E-3</td><td>D314</td><td>A-5</td><td>R303</td><td>G-3</td><td>R342</td><td>G-4</td><td>R393</td><td>C-2</td></td<>		E-3	D314	A-5	R303	G-3	R342	G-4	R393	C-2
C304 B-3 D317 B-5 R306 B-6 R346 E-4 R396 E-3 C305 B-3 D318 B-2 R307 G-4 R350 C-5 R397 F-2 C306 B-5 D321 F-6 R308 G-4 R351 F-4 R398 F-2 C308 B-5 D323 F-2 R309 G-4 R352 F-5 R399 B-3 C310 B-5 D324 D-2 R310 F-3 R353 F-5 R490 C-2 C311 B-5 D325 B-7 R311 F-3 R355 C-5 R494 D-1 C311 B-5 D327 E-9 R313 F-3 R356 C-5 R495 D-1 C313 B-5 D327 E-9 R314 F-4 R357 F-2 R497 C-1 C313 B-3 D480 F-10 R315 B-3 R358 <td< td=""><td>C302</td><td>E-3</td><td>D315</td><td>A-4</td><td>R304</td><td>B6</td><td>R343</td><td>A-2</td><td>R394</td><td>F-3</td></td<>	C302	E-3	D315	A-4	R304	B6	R343	A-2	R394	F-3
C305 B-3 D318 B-2 R307 G-4 R350 C-5 R397 F-2 C306 B-5 D321 F-6 R308 G-4 R351 F-4 R398 F-2 C308 B-5 D323 F-2 R309 G-4 R352 F-5 R399 B-3 C310 B-5 D324 D-2 R310 F-3 R353 F-5 R490 C-2 C311 B-5 D325 B-7 R311 F-3 R355 C-5 R495 D-1 C312 C-5 D326 B-7 R312 B-4 R355 C-5 R495 D-1 C312 C-5 D326 B-7 R311 F-3 R356 C-5 R496 C-1 C313 B-5 D327 E-9 R313 F-3 R356 C-5 R496 C-1 C314 A-4 D328 E-9 R314 F-4 R357	C303	B-3	D316	B-6	R305	F10	R345	C-5	R395	G-2
C306 B-5 D321 F-6 R308 G-4 R351 F-4 R398 F-2 C308 B-5 D323 F-2 R309 G-4 R352 F-5 R399 B-3 C310 B-5 D324 D-2 R310 F-3 R353 F-5 R490 C-2 C311 B-5 D325 B-7 R311 F-3 R354 C-5 R494 D-1 C312 C-5 D326 B-7 R312 B-4 R355 C-5 R495 D-1 C313 B-5 D327 E-9 R313 F-3 R356 C-5 R496 C-1 C314 A-4 D328 E-9 R314 F-4 R357 F-2 R497 C-1 C315 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C316 E-3 D480 F-10 R317 B-3 R356 <t< td=""><td>C304</td><td>B-3</td><td>D317</td><td>B-5</td><td>R306</td><td>B-6</td><td>R346</td><td>E-4</td><td>R396</td><td>E-3</td></t<>	C304	B-3	D317	B-5	R306	B-6	R346	E-4	R396	E-3
C308 B-5 D323 F-2 R309 G-4 R352 F-5 R399 B-3 C310 B-5 D324 D-2 R310 F-3 R353 F-5 R490 C-2 C311 B-5 D325 B-7 R311 F-3 R354 C-5 R494 D-1 C312 C-5 D326 B-7 R312 B-4 R355 C-5 R495 D-1 C313 B-5 D327 E-9 R313 F-3 R356 C-5 R496 C-1 C314 A-4 D328 E-9 R314 F-4 R357 F-2 R497 C-1 C315 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C316 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C317 E-3 0301 A-4 R317 B-3 R362 <t< td=""><td>C305</td><td>B-3</td><td>D318</td><td>B-2</td><td>R307</td><td>G-4</td><td>R350</td><td>C-5</td><td>R397</td><td>F-2</td></t<>	C305	B-3	D318	B-2	R307	G-4	R350	C-5	R397	F-2
C310 B-5 D324 D-2 R310 F-3 R363 F-5 R490 C-2 C311 B-5 D325 B-7 R311 F-3 R354 C-5 R494 D-1 C312 C-5 D326 B-7 R312 B-4 R355 C-5 R495 D-1 C313 B-5 D327 E-9 R313 F-3 R356 C-5 R496 C-1 C314 A-4 D328 E-9 R314 F-4 R357 F-2 R497 C-1 C315 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C316 E-3 O301 A-4 R317 B-3 R359 C-8 C-5 R499 G-3 C317 E-3 O301 A-4 R317 B-3 R362 F-2 S300 F-7 C318 E-3 O302 B-4 R318 B-3	C306	B-5	D321	F-6	R308	G-4	R351	F-4	R398	F-2
C311 B-5 D325 B-7 R311 F-3 R354 C-5 R494 D-1 C312 C-5 D326 B-7 R312 B-4 R355 C-5 R495 D-1 C313 B-5 D327 E-9 R313 F-3 R356 C-5 R496 C-1 C314 A-4 D328 E-9 R314 F-4 R357 F-2 R497 C-1 C315 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C316 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C316 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C317 E-3 O301 A-4 R317 B-3 R362 F-2 S300 F-7 C318 E-3 O302 B-4 R318 B-3 R362 <	C308	B5	D323	F-2	R309	G-4	R352	F-5	R399	B -3
C312 C-5 D326 B-7 R312 B-4 R355 C-5 R495 D-1 C313 B-5 D327 E-9 R313 F-3 R356 C-5 R496 C-1 C314 A-4 D328 E-9 R314 F-4 R357 F-2 R497 C-1 C315 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C316 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C316 E-3 O301 A-4 R317 B-3 R362 F-2 S300 F-7 C318 E-3 O302 B-4 R318 B-3 R363 E-4 S301 E-2 C319 E-4 O303 A-4 R319 B-4 R364 E-4 S480 E-4 C319 E-4 O304 A-4 R320 B-4 R365 <t< td=""><td>C310</td><td>B-5</td><td>D324</td><td>D-2</td><td>R310</td><td>F-3</td><td>R353</td><td>F-5</td><td>R490</td><td>C-2</td></t<>	C310	B-5	D324	D-2	R310	F-3	R353	F-5	R490	C-2
C313 B-5 D327 E-9 R313 F-3 R356 C-5 R496 C-1 C314 A-4 D328 E-9 R314 F-4 R357 F-2 R497 C-1 C315 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C316 E-3 D480 F-10 R316 B-3 R358 C-5 R499 G-3 C317 E-3 O301 A-4 R317 B-3 R362 F-2 S300 F-7 C318 E-3 O302 B-4 R318 B-3 R363 E-4 S301 E-2 C319 E-4 O303 A-4 R319 B-4 R364 E-4 S480 E-4 C320 E-4 O304 A-4 R320 B-4 R365 G-2 S481 E-3 C321 E-2 FL300 F-5 R322 F-4 R371 <	C311	B-5	D325	B-7	R311	F-3	R354	C-5	R494	
C314 A-4 D328 E-9 R314 F-4 R357 F-2 R497 C-1 C315 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C316 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C317 E-3 O301 A-4 R317 B-3 R359 C-8 C317 E-3 O301 A-4 R317 B-3 R362 F-2 S300 F-7 C318 E-3 O302 B-4 R318 B-3 R363 E-4 S301 E-2 C319 E-4 O303 A-4 R319 B-4 R364 E-4 S480 E-4 C320 E-4 O304 A-4 R320 B-4 R365 G-2 S481 E-3 C321 E-2 F-3 R322 F-4 R371 E-3 S482 E-2	C312	C-5	D326	B-7	R312	B-4	R355	C-5	R495	D-1
C314 A-4 D328 E-9 R314 F-4 R357 F-2 R497 C-1 C315 E-3 D480 F-10 R315 B-3 R358 C-5 R499 G-3 C316 E-3 O301 A-4 R317 B-3 R362 F-2 S300 F-7 C318 E-3 O302 B-4 R318 B-3 R363 E-4 S301 E-2 C319 E-4 O303 A-4 R319 B-4 R364 E-4 S480 E-4 C320 E-4 O304 A-4 R320 B-4 R365 G-2 S481 E-3 C321 E-2 R321 F-3 R370 E-3 S482 E-2 C323 F-2 FL300 F-5 R322 F-4 R371 E-3 S483 G-6 C325 C-2 HL480 F-8 R324 B-4 R373 C-3 S485 <	C313	B-5	D327	E-9	R313	F-3	R356	C-5	R496	C-1
C316 E-3 R316 B-3 R359 C-8 C317 E-3 Q301 A-4 R317 B-3 R362 F-2 S300 F-7 C318 E-3 Q302 B-4 R318 B-3 R363 E-4 S301 E-2 C319 E-4 Q303 A-4 R319 B-4 R364 E-4 S480 E-4 C320 E-4 Q304 A-4 R320 B-4 R365 G-2 S481 E-3 C321 E-2 R321 F-3 R370 E-3 S482 E-2 C321 E-2 FL300 F-5 R322 F-4 R371 E-3 S482 E-2 C325 C-2 FL300 F-8 R322 F-4 R371 E-3 S483 G-6 C326 C-2 HL480 F-8 R324 B-4 R373 C-3 S485 F-2 C327 C-2	C314	A-4	D328	E-9	R314	F-4	R357	F-2	R497	
C317 E-3 0301 A-4 R317 B-3 R362 F-2 S300 F-7 C318 E-3 0302 B-4 R318 B-3 R363 E-4 S301 E-2 C319 E-4 0303 A-4 R319 B-4 R364 E-4 S480 E-4 C320 E-4 0304 A-4 R319 B-4 R365 G-2 S481 E-3 C321 E-2 B-4 R320 B-4 R365 G-2 S481 E-3 C321 E-2 B-3 R321 F-3 R370 E-3 S482 E-2 C323 F-2 FL300 F-5 R322 F-4 R371 E-3 S483 G-6 C325 C-2 HL480 F-8 R324 B-4 R372 E-3 S484 E-6 C326 C-2 HL480 F-8 R324 B-4 R374 C-3 S486 <t< td=""><td>C315</td><td>E-3</td><td>D480</td><td>F-10</td><td>R315</td><td>B-3</td><td>R358</td><td>C-5</td><td>R499</td><td>G-3</td></t<>	C315	E-3	D480	F-10	R315	B-3	R358	C-5	R499	G-3
C318 E-3 0302 B-4 R318 B-3 R363 E-4 S301 E-2 C319 E-4 0303 A-4 R319 B-4 R364 E-4 S480 E-4 C320 E-4 0304 A-4 R320 B-4 R365 G-2 S481 E-3 C321 E-2 R321 F-3 R370 E-3 S482 E-2 C323 F-2 FL300 F-5 R322 F-4 R371 E-3 S483 G-6 C325 C-2 HL480 F-8 R324 B-4 R372 E-3 S484 E-6 C326 C-2 HL480 F-8 R324 B-4 R373 C-3 S485 F-2 C327 C-2 R325 B-4 R374 C-3 S486 G-2 C328 F-2 IC301 B-5 R326 G-2 R375 C-3 S487 G-7 <td< td=""><td>C316</td><td>E-3</td><td></td><td></td><td>R316</td><td>B-3</td><td>R359</td><td>C-8</td><td></td><td></td></td<>	C316	E-3			R316	B-3	R359	C-8		
C319 E-4 0303 A-4 R319 B-4 R364 E-4 S480 E-4 C320 E-4 0304 A-4 R320 B-4 R365 G-2 S481 E-3 C321 E-2 R321 F-3 R370 E-3 S482 E-2 C323 F-2 FL300 F-5 R322 F-4 R371 E-3 S483 G-6 C325 C-2 R323 C-5 R372 E-3 S484 E-6 C326 C-2 HL480 F-8 R324 B-4 R373 C-3 S485 F-2 C327 C-2 R325 B-4 R374 C-3 S486 G-2 C328 F-2 IC301 B-5 R326 G-2 R375 C-3 S487 G-7 C336 G-2 IC302 B-2 R327 A-6 R376 E-4 S488 G-6 CN480 A-3 <t< td=""><td>C317</td><td>E-3</td><td>0301</td><td>A-4</td><td>R317</td><td>B-3</td><td>R362</td><td>F-2</td><td>S300</td><td>F7</td></t<>	C317	E-3	0301	A-4	R317	B-3	R362	F-2	S300	F7
C319 E-4 0303 A-4 R319 B-4 R364 E-4 S480 E-4 C320 E-4 0304 A-4 R320 B-4 R365 G-2 S481 E-3 C321 E-2 B321 F-3 R370 E-3 S482 E-2 C323 F-2 FL300 F-5 R322 F-4 R371 E-3 S483 G-6 C325 C-2 BL300 F-5 R322 F-4 R371 E-3 S483 G-6 C326 C-2 HL480 F-8 R322 F-4 R372 E-3 S484 E-6 C326 C-2 HL480 F-8 R324 B-4 R373 C-3 S485 F-2 C327 C-2 R325 B-4 R374 C-3 S486 G-2 C328 F-2 IC301 B-5 R326 G-2 R375 C-3 S487 G-7 <t< td=""><td>C318</td><td>E-3</td><td>0302</td><td>B-4</td><td>R318</td><td>B-3</td><td>R363</td><td>E-4</td><td>S301</td><td>E-2</td></t<>	C318	E-3	0302	B-4	R318	B-3	R363	E-4	S301	E-2
C321 E-2 F-3 R321 F-3 R370 E-3 S482 E-2 C323 F-2 FL300 F-5 R322 F-4 R371 E-3 S483 G-6 C325 C-2 HL480 F-8 R323 C-5 R372 E-3 S484 E-6 C326 C-2 HL480 F-8 R324 B-4 R373 C-3 S485 F-2 C327 C-2 R325 B-4 R374 C-3 S486 G-2 C328 F-2 IC301 B-5 R326 G-2 R375 C-3 S487 G-7 C336 G-2 IC302 B-2 R327 A-6 R376 E-4 S488 G-6 CN480 A-3 R332 B-5 R378 C-3 X302 C-3 CN481 C-2 J480 E-1 R333 B-5 R380 C-3 X7L301 B-3 CN482	C319	E-4	0303	A-4	R319	B-4	R364	E-4		
C321 E-2 FL300 F-5 R321 F-3 R370 E-3 S482 E-2 C323 F-2 FL300 F-5 R322 F-4 R371 E-3 S483 G-6 C325 C-2 HL480 F-8 R323 C-5 R372 E-3 S484 E-6 C326 C-2 HL480 F-8 R324 B-4 R373 C-3 S485 F-2 C327 C-2 R325 B-4 R374 C-3 S486 G-2 C328 F-2 IC301 B-5 R326 G-2 R375 C-3 S487 G-7 C336 G-2 IC302 B-2 R327 A-6 R376 E-4 S488 G-6 CN480 A-3 R331 A-7 R377 E-4 S489 F-4 CN481 C-2 J480 E-1 R333 B-5 R379 C-3 X302 C-3	C320	E-4	0304	A-4	R320	B-4	R365	G-2	S481	E-3
C323 F-2 FL300 F-5 R322 F-4 R371 E-3 S483 G-6 C325 C-2 R323 C-5 R372 E-3 S484 E-6 C326 C-2 HL480 F-8 R324 B-4 R373 C-3 S485 F-2 C327 C-2 R325 B-4 R374 C-3 S486 G-2 C328 F-2 IC301 B-5 R326 G-2 R375 C-3 S487 G-7 C336 G-2 IC302 B-2 R327 A-6 R376 E-4 S488 G-6 CN480 A-3 R331 A-7 R377 E-4 S489 F-4 CN481 C-2 J480 E-1 R333 B-5 R379 C-3 X302 C-3 CN482 C-9 R334 B-5 R381 C-3 XTL301 B-3	C321	E-2			R321	F-3	R370	ì		
C325 C-2 HL480 F-8 R323 C-5 R372 E-3 S484 E-6 C326 C-2 HL480 F-8 R324 B-4 R373 C-3 S485 F-2 C327 C-2 R325 B-4 R374 C-3 S486 G-2 C328 F-2 IC301 B-5 R326 G-2 R375 C-3 S487 G-7 C336 G-2 IC302 B-2 R327 A-6 R376 E-4 S488 G-6 CN480 A-3 R331 A-7 R377 E-4 S489 F-4 CN481 C-2 J480 E-1 R333 B-5 R379 C-3 X302 C-3 CN482 C-9 R334 B-5 R380 C-3 XTL301 B-3	C323	F-2	FL300	F-5	R322	F-4	R371	E-3	S483	
C326 C-2 HL480 F-8 R324 B-4 R373 C-3 S485 F-2 C327 C-2 R325 B-4 R374 C-3 S486 G-2 C328 F-2 IC301 B-5 R326 G-2 R375 C-3 S487 G-7 C336 G-2 IC302 B-2 R327 A-6 R376 E-4 S488 G-6 IC303 C-4 R331 A-7 R377 E-4 S489 F-4 CN480 A-3 R332 B-5 R378 C-3 X302 C-3 CN481 C-2 J480 E-1 R333 B-5 R379 C-3 X302 C-3 CN482 C-9 R334 B-5 R380 C-3 X7L301 B-3	C325	C-2		į	R323	C-5	R372	E3	\$484	E-6
C328 F-2 IC301 B-5 R326 G-2 R375 C-3 S487 G-7 C336 G-2 IC302 B-2 R327 A-6 R376 E-4 S488 G-6 IC303 C-4 R331 A-7 R377 E-4 S489 F-4 CN480 A-3 R332 B-5 R378 C-3 C-3 CN481 C-2 J480 E-1 R333 B-5 R379 C-3 X302 C-3 CN482 C-9 R334 B-5 R380 C-3 XTL301 B-3	C326	C-2	HL480	F-8	R324	B-4	R373	C-3	S485	
C328 F-2 IC301 B-5 R326 G-2 R375 C-3 S487 G-7 C336 G-2 IC302 B-2 R327 A-6 R376 E-4 S488 G-6 IC303 C-4 R331 A-7 R377 E-4 S489 F-4 CN480 A-3 R332 B-5 R378 C-3 X302 C-3 CN481 C-2 J480 E-1 R333 B-5 R379 C-3 X302 C-3 CN482 C-9 R334 B-5 R380 C-3 XTL301 B-3	C327	C-2		i	R325	B-4	R374	C-3	S486	G-2
C336 G-2 IC302 B-2 R327 A-6 R376 E-4 S488 G-6 IC303 C-4 R331 A-7 R377 E-4 S489 F-4 CN480 A-3 R332 B-5 R378 C-3 C-3 CN481 C-2 J480 E-1 R333 B-5 R379 C-3 X302 C-3 CN482 C-9 R334 B-5 R380 C-3 X7L301 B-3 L300 B-3 R335 B-5 R381 C-3 X7L301 B-3	C328	F-2	IC301	B-5	R326	G-2	R375	C-3	S487	
CN480 A-3 R332 B-5 R378 C-3 C-3 CN481 C-2 J480 E-1 R333 B-5 R379 C-3 X302 C-3 CN482 C-9 R334 B-5 R380 C-3 X7L301 B-3 L300 B-3 R335 B-5 R381 C-3 X7L301 B-3	C336	G-2	IC302	B-2	R327	A6	R376	E-4	S488	
CN480 A-3 R332 B-5 R378 C-3 CN481 C-2 J480 E-1 R333 B-5 R379 C-3 X302 C-3 CN482 C-9 R334 B-5 R380 C-3 X7L301 B-3 L300 B-3 R335 B-5 R381 C-3 X7L301 B-3			10303	C-4	R331	A-7	R377	E-4	S489	F-4
CN482	CN480	A-3			R332	B-5	R378	C-3		
CN482	CN481	C-2	J480	E-1	R333	B-5	R379	C-3	X302	C-3
	CN482	C-9			R334	B-5	R380	C-3		
D300 R-2 D326 C.E. D324 D.2			L300	B-3	R335	B-5	R381	C-3	XTL301	B -3
N350	D300	B-2			R336	G-5	R384	B-3		
D301 D-3 PS301 A-6 R337 A-5 R386 E-2	D301	D-3	PS301	A6	R337					
D303 B-7 R338 A-4 R387 F-3	D303	B-7			R338	A-4	R387	F-3		



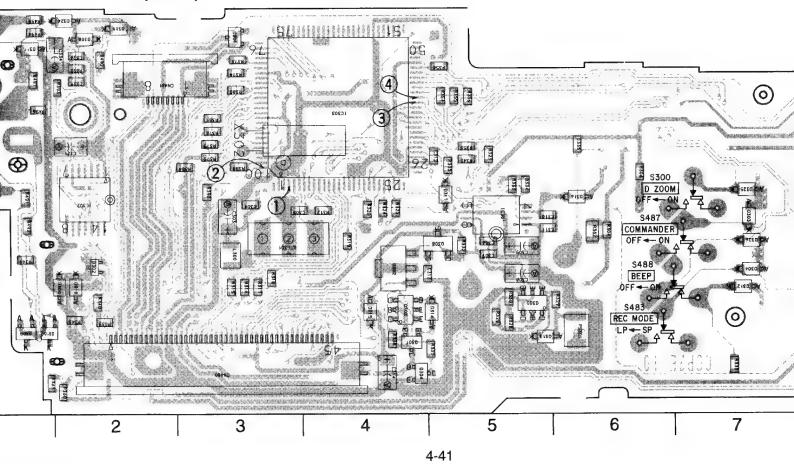
There are few cases that the pa G F E COU D J480 LANC В Α 16

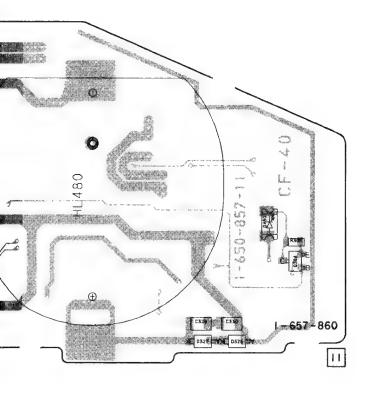
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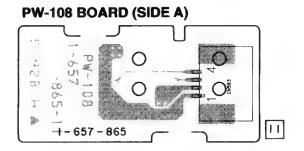


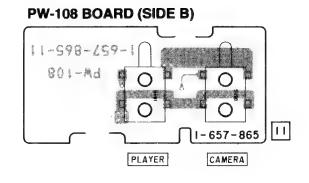


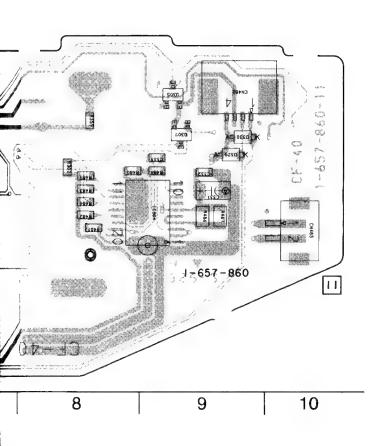
CF-40 BOARD (SIDE B)





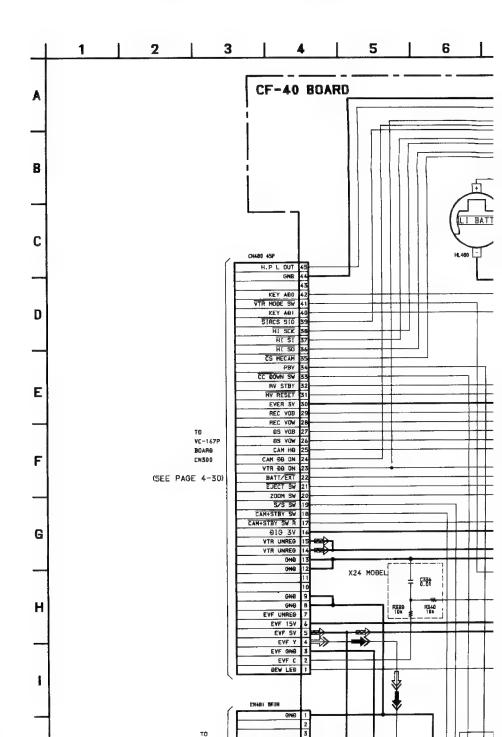




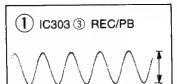


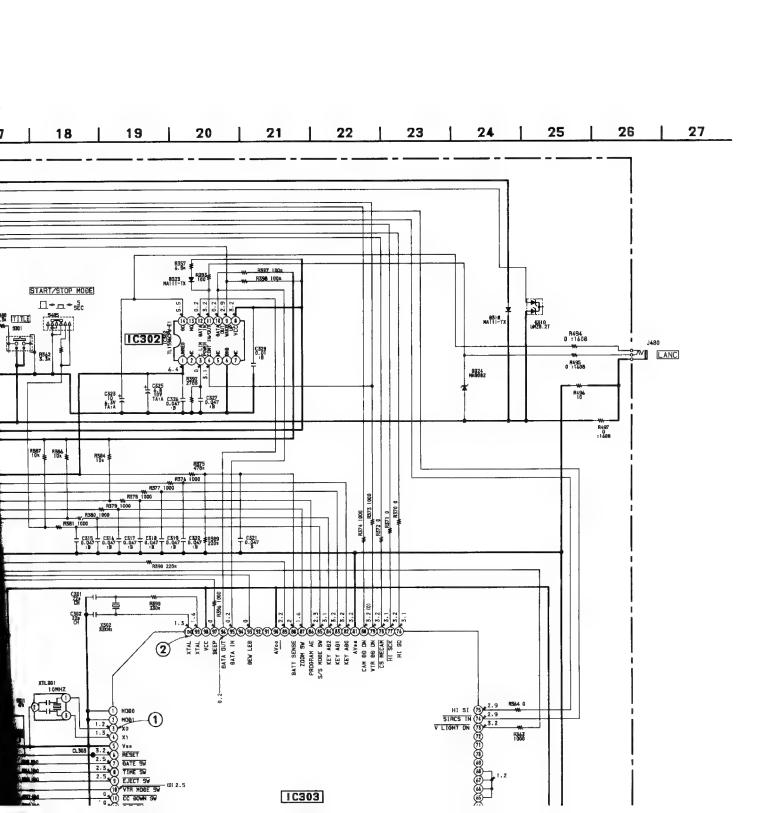
CF-40 (SYSTEM CONTROL), PW-108 (POWER SWITCH) SCHEMATIC DIA

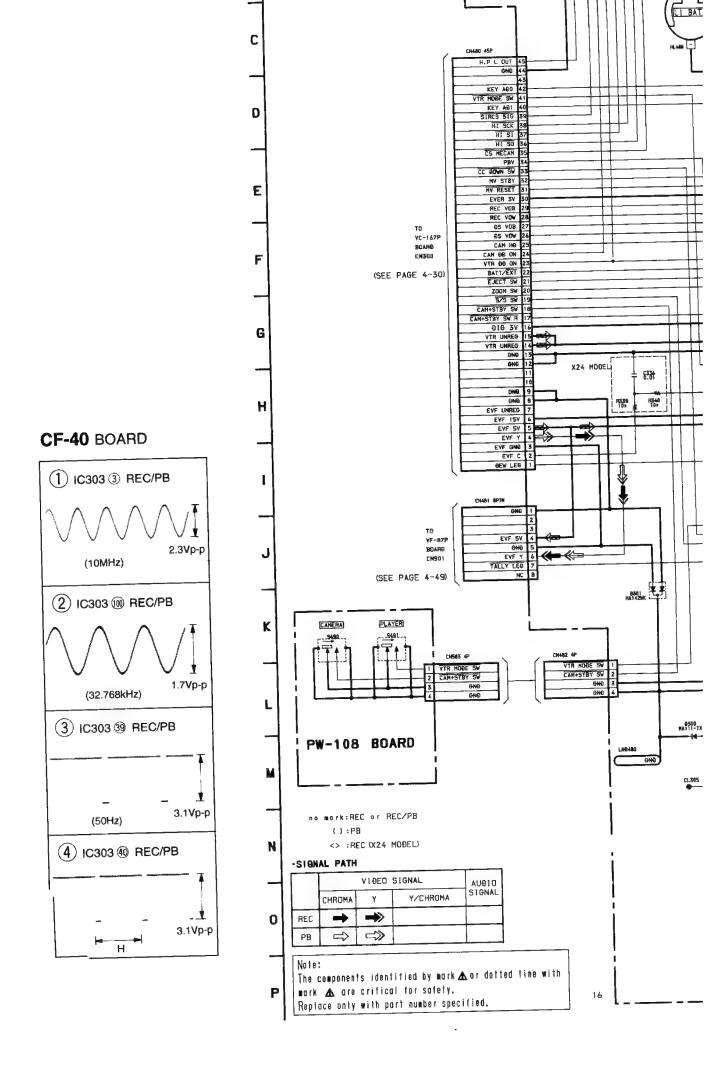
- Ref. No. CF-40 Board, PW-108 Board; 2,000 Series -

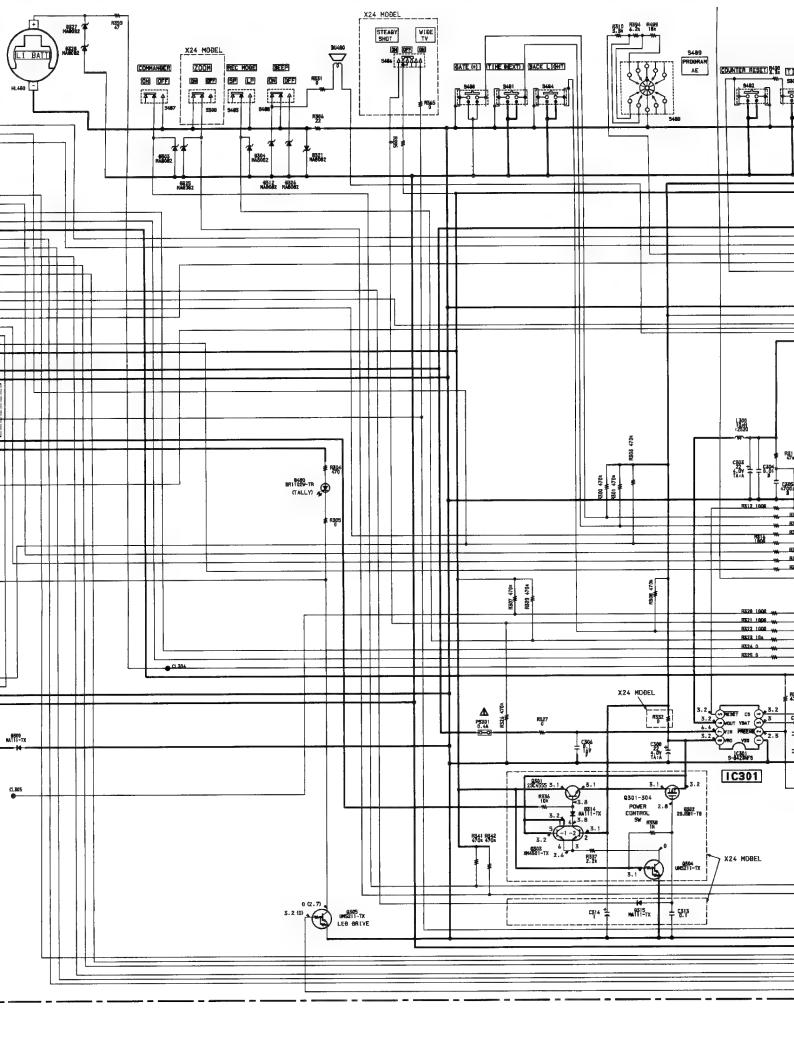


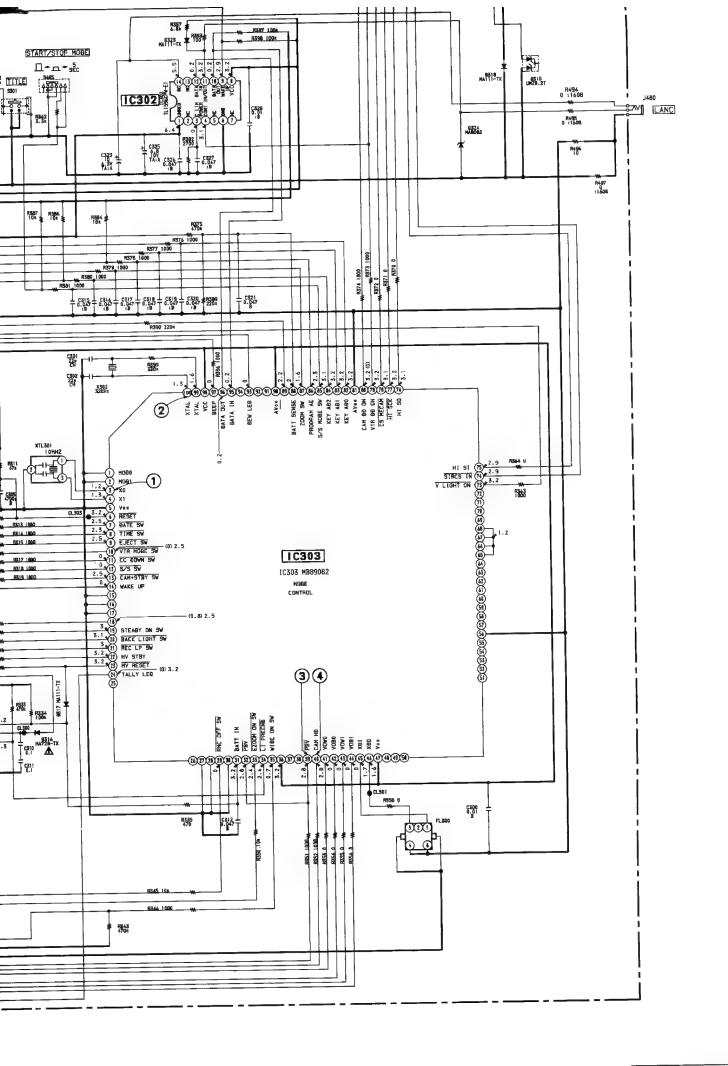
CF-40 BOARD





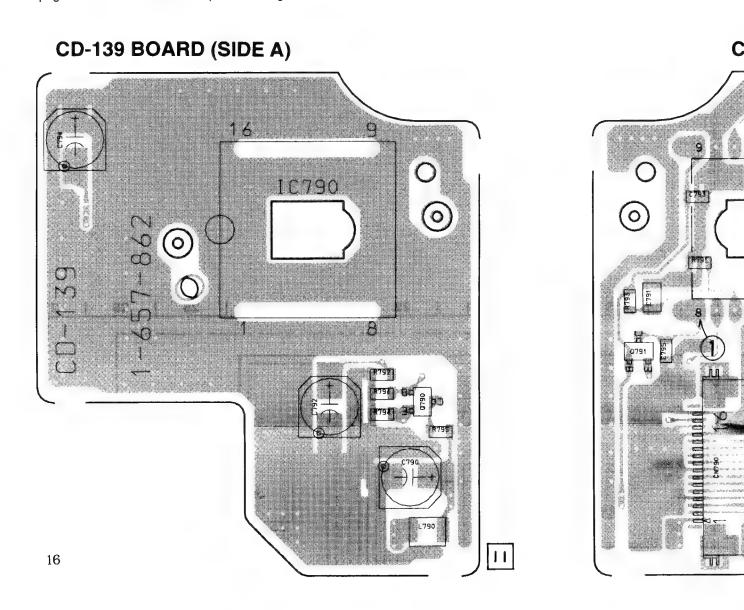




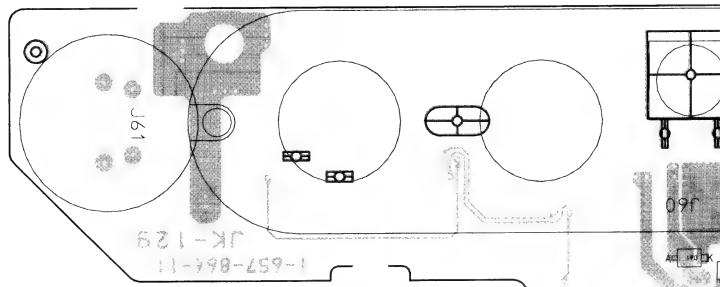


VF-87P (EVF), JK-129 (JACK), CD-139 (CCD IMAGER) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

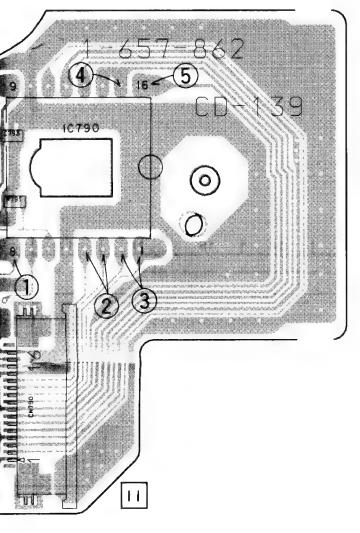
- Ref. No. VF-87P Board, JK-129 Board, CD-139 Board; 2,000 Series -
 - See page 4-18 for JK-129 BOARD printed wiring board.

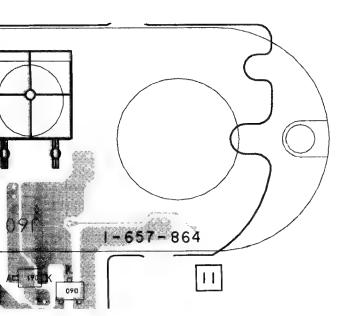


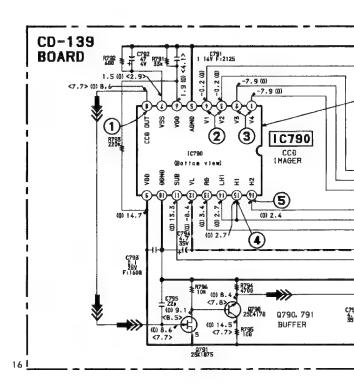
JK-129 BOARD (SIDE A)

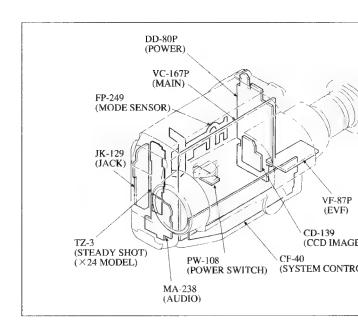


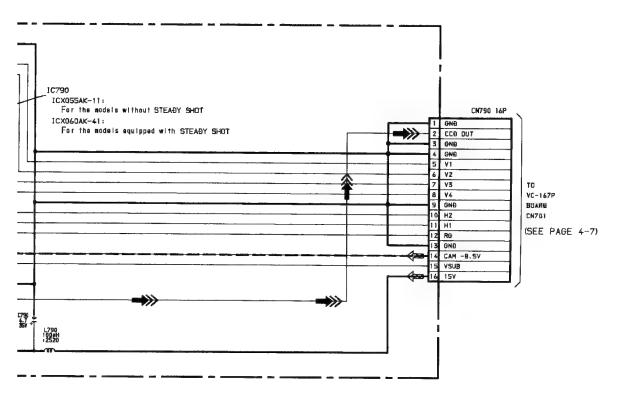
CD-139 BOARD (SIDE B)

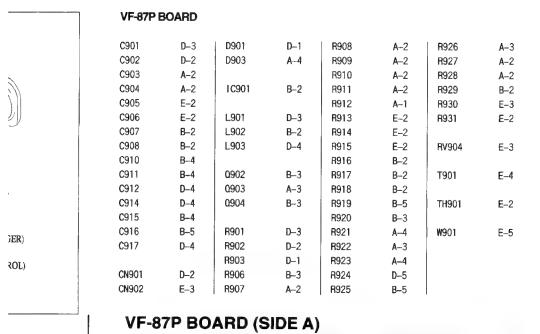


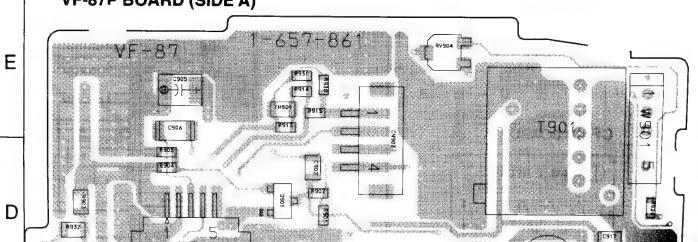


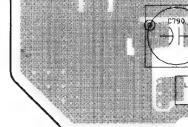


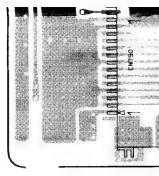






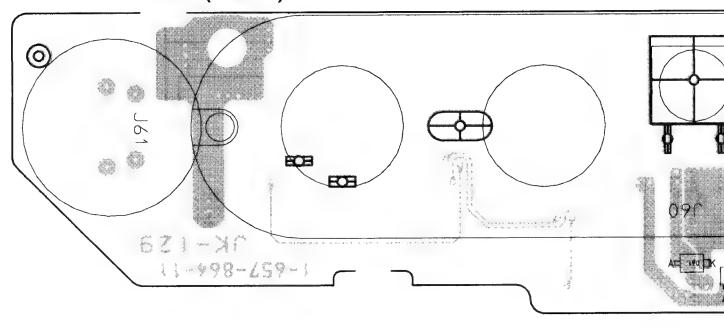




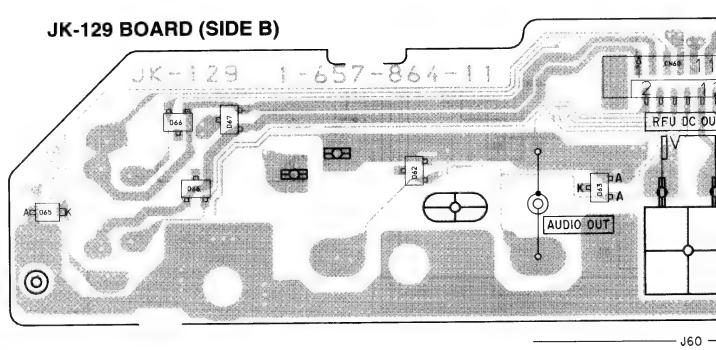


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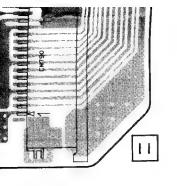
JK-129 BOARD (SIDE A)

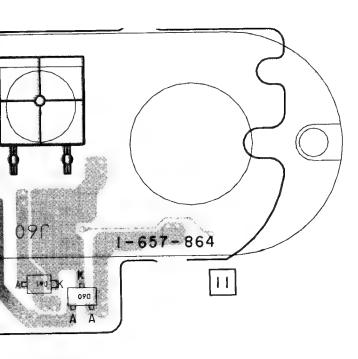


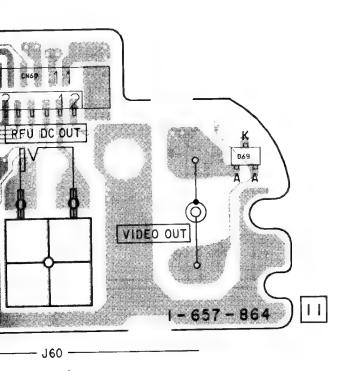
11

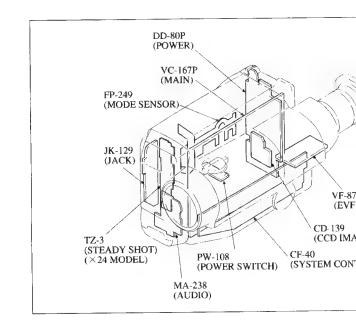


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VF-87P E	BOARD										
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C901	D-3	D901	D-1	R908	A-2	R926	A-3				
C902	D-2	D903	A-4	R909	A-2	R927	A-2				
C903	A-2			R910	A-2	R928	A-2				
C904	A -2	IC901	B-2	R911	A –2	R929	B-2				
C905	E-2			R912	A –1	R930	E-3				
C906	E-2	L901	D-3	R913	E-2	R931	E-2				
C907	B-2	L902	B –2	R914	E-2						
C908	B-2	L903	D-4	R915	E-2	RV904	E-3				
C910	B4			R916	B –2						
C911	B-4	0902	B-3	R917	B-2	T901	E-4				
C912	D-4	0903	A-3	R918	B-2						
C914	D-4	Q904	B-3	R919	B-5	TH901	E-2				
C915	B-4			R920	B-3						
C916	B- 5	R901	D-3	R921	A-4	W901	E-5				
C917	D-4	R902	D-2	R922	A-3						
		R903	D-1	R923	A -4						
CN901	D-2	R906	B-3	R924	D-5						
CN902	E-3	R907	A-2	R925	B-5						
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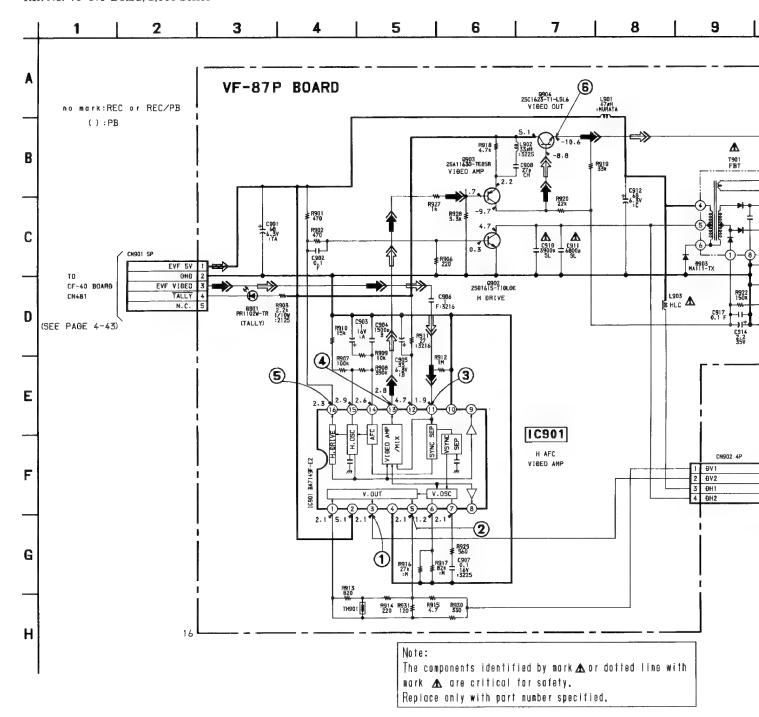
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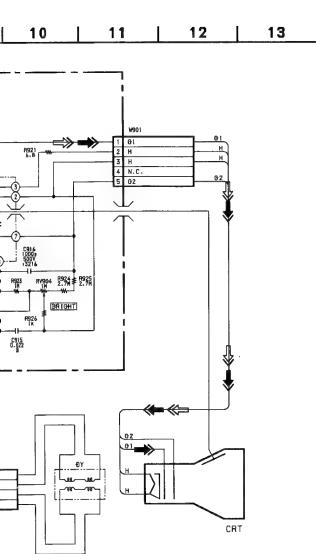
Α

16

VF-87P (EVF) SCHEMATIC DIAGRAM

- Ref. No. VF-87P Board; 2,000 Series -

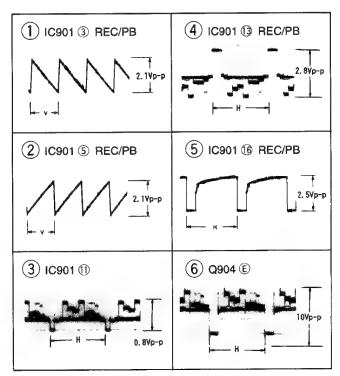




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VF-87P BOARD

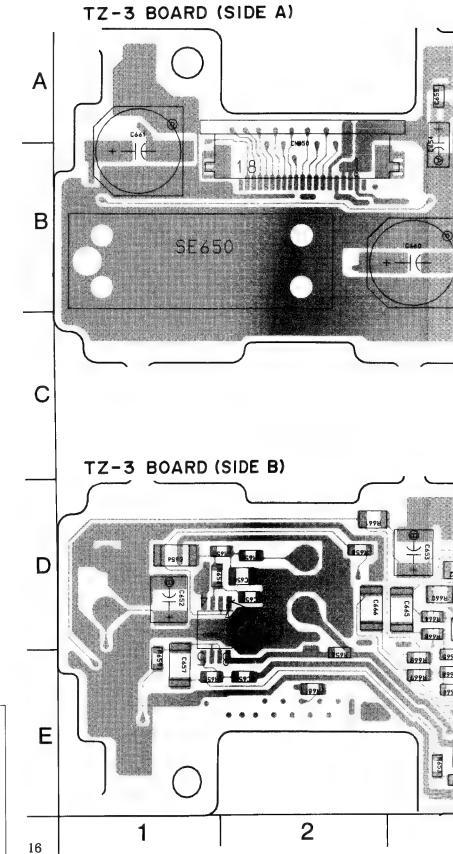


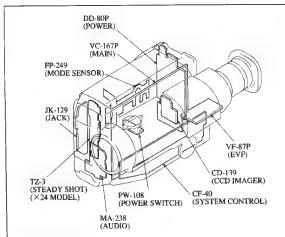
(×24 MODEL)

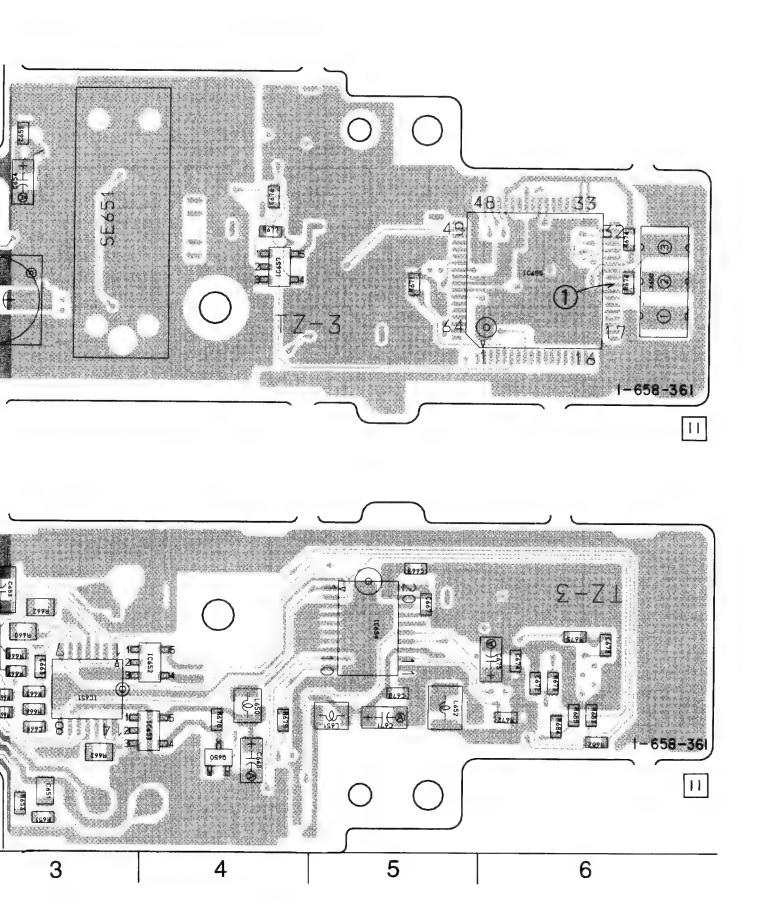
TZ-3 (STEADY SHOT) PRINTED WIRING BOARD

- Ref. No.: TZ-3 Board; 5,000 Series -

TZ-3 E	BOARD				
C650	D-2	IC650	D-1	R665	D-3
C651	E-3	IC651	D-3	R666	E-3
C652	D-1	IC652	D-3	R667	D -3
C653	D-3	IC653	D-4	R668	D-3
C654	A-3	IC654	D-5	R669	D –3
C655	A-3	1C655	B6	R670	E-4
C656	D-1			R671	B -5
C657	E-1	L650	E-4	R672	D-6
C658	D-2	L651	E-5	R673	D6
C659	E-2	L652	D-5	R 674	B6
C660	B-3			R675	D6
C661	A1	Q 650	E-4	R676	B- 6
C663	D-3			R679	E-4
C664	E-3	R650	D-2	R681	E-2
C665	D-2	R651	E-3	R683	D-6
C666	D-2	R652	D-1	R685	D-6
C667	D-5	R653	E-3		
C668	E-4	R654	D-1	SE650	B-2
C669	D-5	R655	E-1	SE651	B-3
C670	D-5	R656	E-2		
¢671	E-5	R658	D-2	X650	B –6
C672	D-6	R659	E-1		
C673	D-6	R660	D-3		
C674	D-6	R661	D-2		
C675	D-6	R662	D-3		
		R663	E-3		
CN650	B-2	R664	D-3		



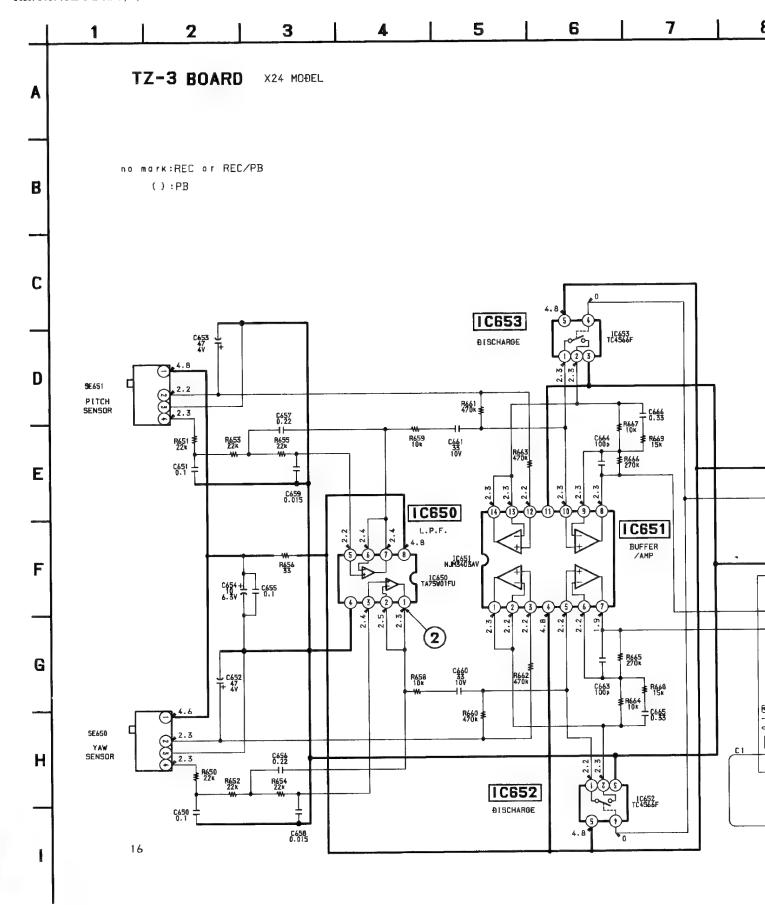


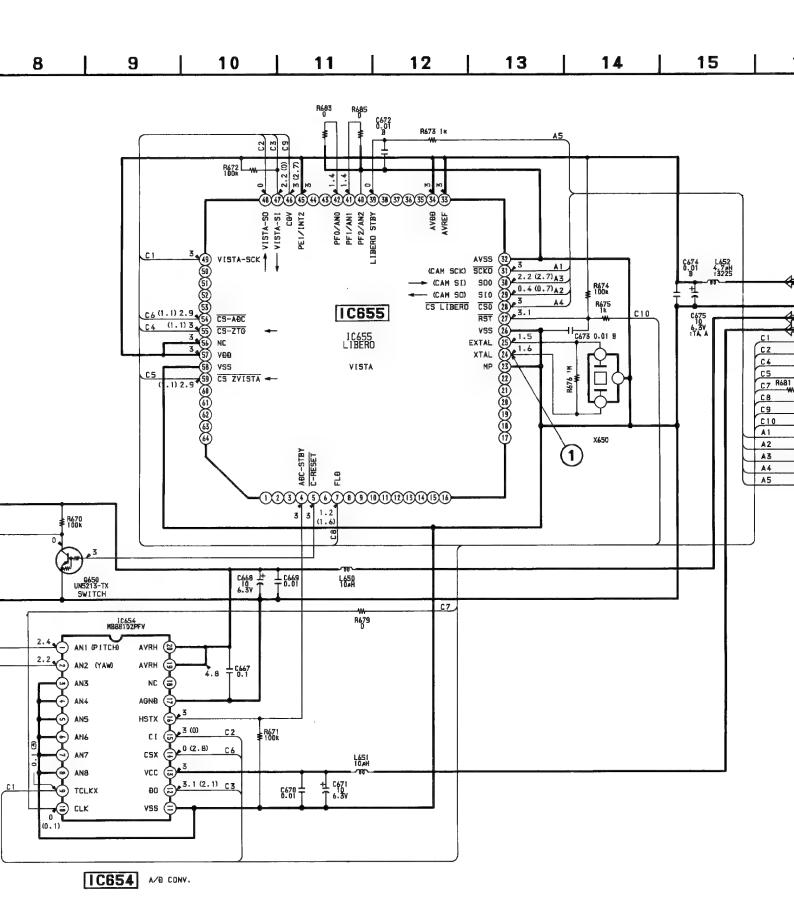


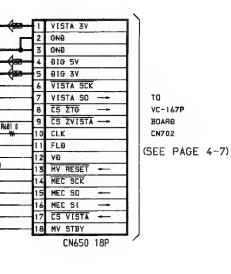
(×24 MODEL)

TZ-3 (STEADY SHOT) SCHEMATIC DIAGRAM

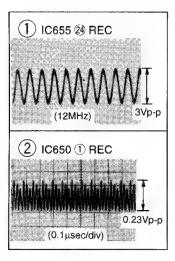
- Ref. No.: TZ-3 Board; 5,000 Series -







TZ-3 BOARD



SECTION 5 REPAIR PARTS LIST

5-1. EXPLODED VIEWS

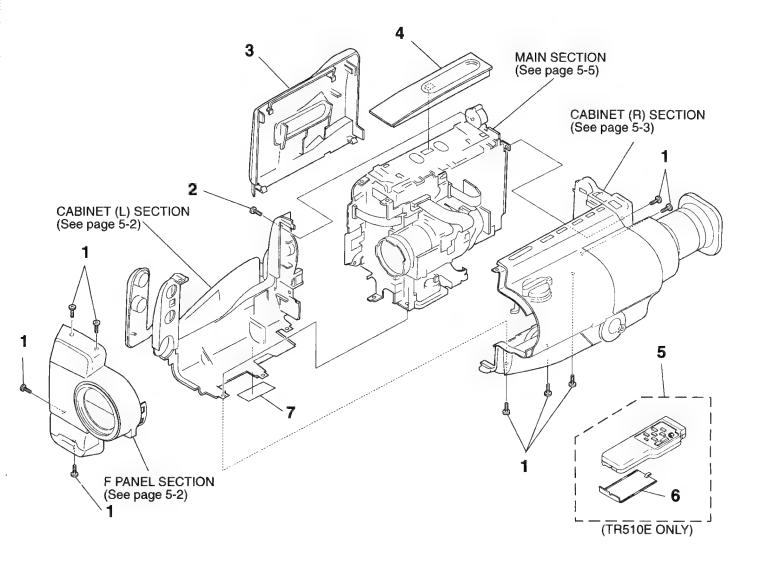
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service.
 Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark ${\textstyle \bigwedge}$ or dotted line with mark ${\textstyle \bigwedge}$ are critical for safety.

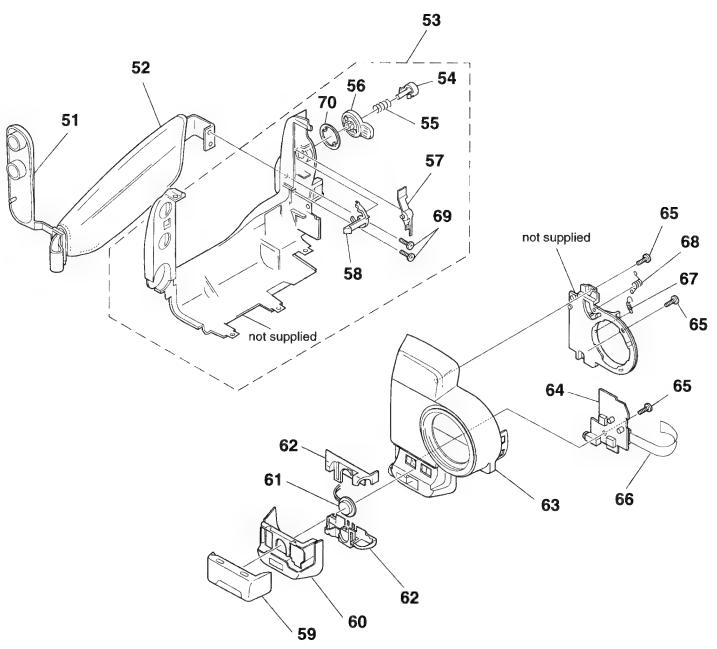
Replace only with part number specified.

5-1-1. OVERALL SECTION



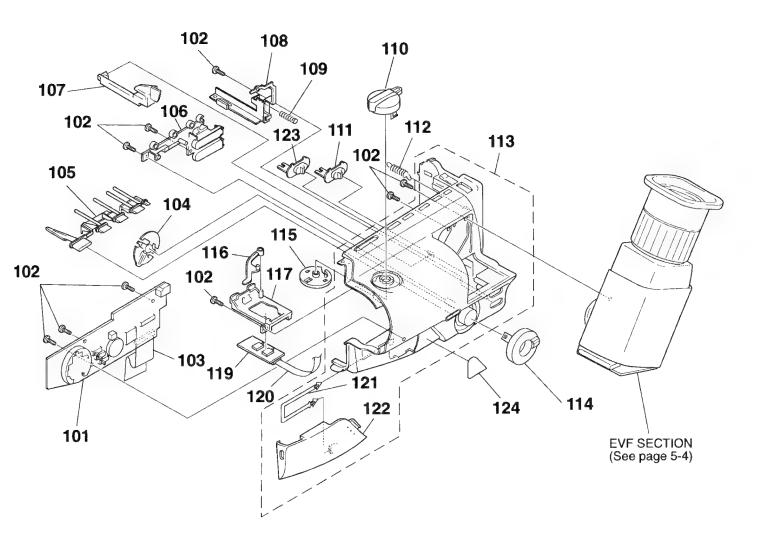
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	3-962-826-01	SCREW (2X4)		4	3-965-896-01	LID, LS	
2	3-713-786-21	SCREW (M2X3)		5	1-473-342-11	REMOTE COMMANDER (RMT-713) (TR51	10E)
3	X-3945-446-1	LID ASSY, CASSETTE (TR330E)		6	3-958-131-01	COVER, BATTERY, REMOCON (TR510E	E)
3	X-3945 446-2	LID ASSY, CASSETTE (TR510E)		7	3-704-235-01	LABEL, CAUTION (TR330E:UK)	

5-1-2. CABINET (L), F PANEL SECTION



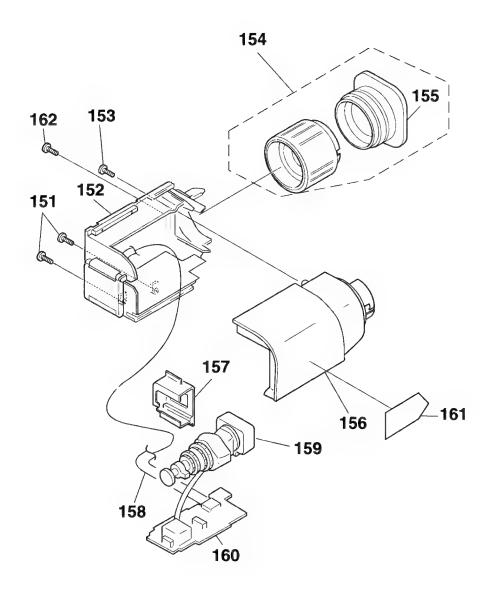
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	3-965 888-01	COVER, JACK		61	1-542-259-11	MICROPHONE, CAP	
52	3-736-807-01	BELT, GRIP	1	62	3-965-861-01	HOLDER, MICROPHONE	
53	X-3945-455-1	CABINET (L) ASSY (TR330E)		63	X-3945-450-1	PANEL ASSY, F (TR330E)	
53	X-3945-455-3	CABINET (L) ASSY (TR510E)		63	X-3945-592-1	PANEL ASSY, F (TR510E)	
54	3-965 844 01	BUTTON, S/S		64	A-7072-358-A	MA-238 BOARD, COMPLETE	
55	3-965-830-01	SPRING, COMPRESSION		65	3-719-601-01	SCREW (B2X5), TAPPING	
56	3-942-985-01	KNOB, STAND BY		66	1-775-517 11	CABLE, FLEXIBLE FLAT 8P	
57	3-965-870-01	PLATE, S/S JOINT	j	67	3-307-378-11	SPRING, TENSION	
58	3-965-869-01	HOLDER, KNOB		68	3-967-293-01	SPRING, L COVER	
59	3-965-860-01	GRILLE (M), MICROPHONE		69	3-669 480-21	+ PTPWH 2	
60	X-3945-449-1	COVER ASSY, MICROPHONE		70	3-736-364-01	SPRING	

5-1-3. CABINET (R) SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
101	A-7072 359-B	CF 40 BOARD, COMPLETE (TR330E)					
101	A-7092-617-A	CF-40 BOARD, COMPLETE (TR510E)		112	4 602-490-00	SPRING, TENSION	
102	3-719-601-01	SCREW (B2X5), TAPPING		113	A-7092-583-A	CABINET (R) ASSY (TR330E)	
103	1-775-520-11	CABLE, FLEXIBLE FLAT 45P		113	A-7062-614-A	CABINET (R) ASSY (TR510E)	
104	3-965-867-01	RETAINER, AE DIAL		114	3-965-866-01	DIAL, AE	
				115	3-965-865-01	DISK, POWER	
105	3-965-894-01	BUTTON, CF					
106	3-965-895 01	HOLDER, CF BUTTON		116	3-965-876-01	LEVER, LC	
107	3-965-879-01	SLIDER, BT		117	3 965-877-01	HOLDER, PW	
108	3-965-878-01	HOLDER, BT		119	A-7072-356-A	PW-108 BOARD, COMPLETE	
109	3-965-846-01	SPRING, COMPRESSION		120	1-775-519-11	CABLE, FLEXIBLE FLAT 4P	
				121	3-965-842-01	HINGE, LITHIUM LID	
110	X-3945-447-1	DIAL ASSY, POWER					
111	3-965-884-01	BUTTON (3), REC MODE		122	3-965-868-02	LID, LITHIUM	
				123	3-966-706-01	BUTTON (3), MODE (TR510E)	
				124	3-965-829-31	PLATE, ORNAMENTAL, SWITCH (TR	510E)

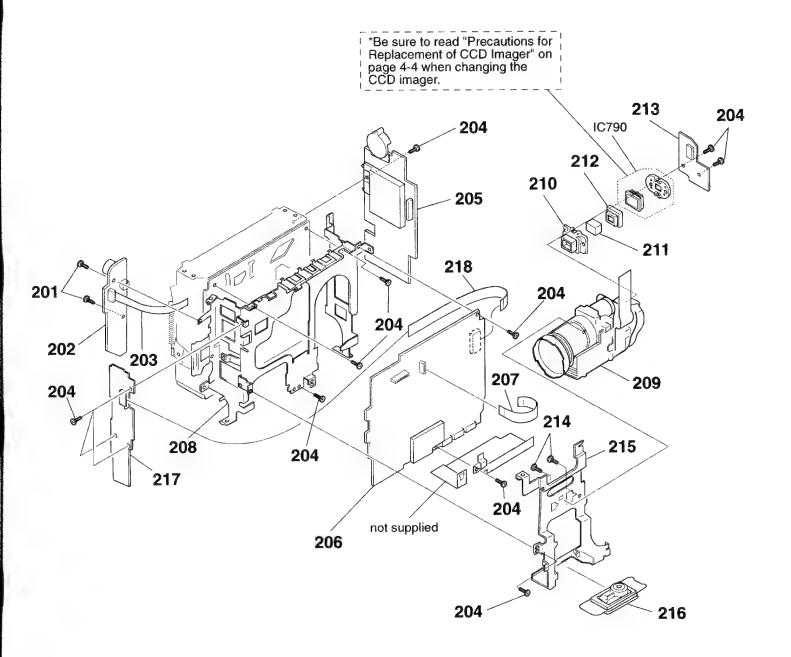
5-1-4. EVF SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
151	3-719-601-01	SCREW (B2X5), TAPPING		156	3-965-899-01	CABINET (R), EVF	
152	X-3945-456-1	CABINET (L) ASSY, EVF		157	X-3945-445-1	COVER ASSY, CRT	
153	3-948-339-01	SCREW, TAPPING		158	1-657-866-11	FP-283 FLEXIBLE BOARD	
154	X 3945 448-1	FINDER ASSY		1 59 1 59	1-452-673-11	CRT ASSY (M01KXX90WB)	
155	3-963-160-01	EYE CUP (DM)		160	A-7072-357-A	VF-87P BOARD, COMPLETE	
				161	3 967 314 -01	STICKER (SS), BODY (TR510E)	
				162	3-966-178-01	SCREW (1.7)	

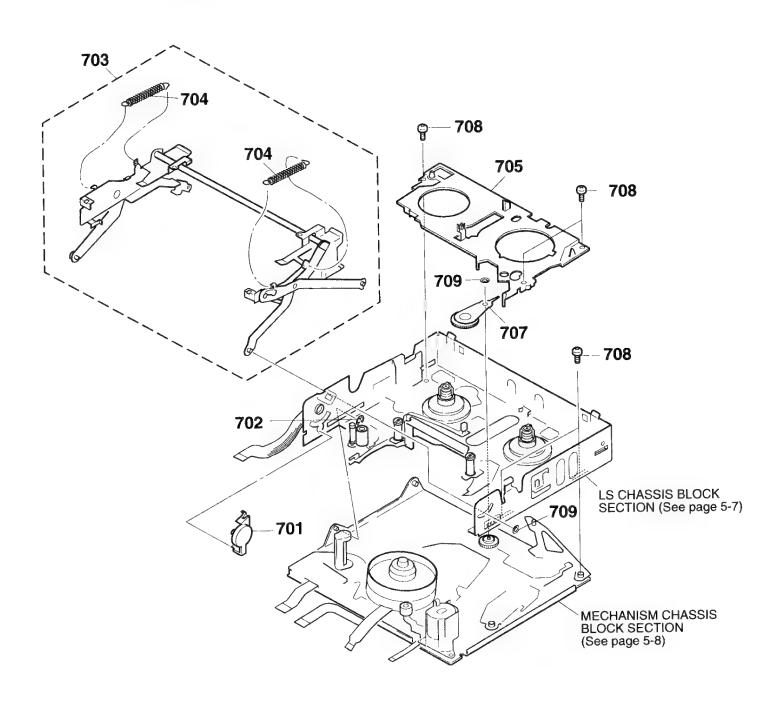
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

5-1-5. MAIN SECTION



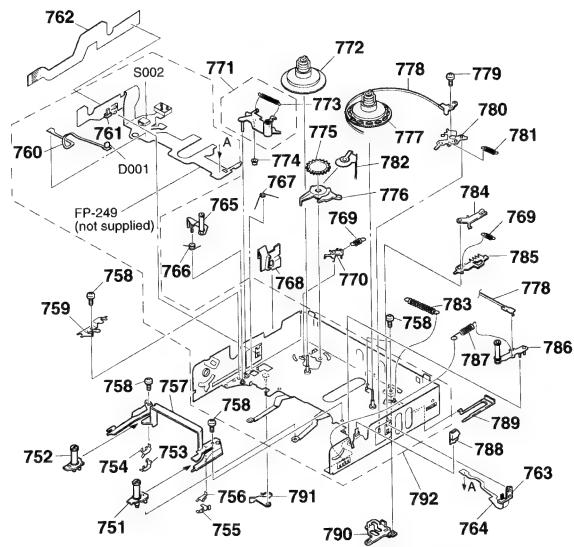
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
201	3-962-826-01	SCREW (2X4)		211	1-547-558-21	FILTER BLOCK, OPTICAL (TR330E)	
202	A-7072-353-A	JK-129 BOARD, COMPLETE		211		FILTER BLOCK, OPTICAL (TR510E)	
203	1-775-518-11	CABLE, FLEXIBLE FLAT 12P		212	3-957-980-11	RUBBER (C), SEAL (TR330E)	
204	3-713-786 21	SCREW (M2X3)		212	3-960-149-01	RUBBER (3), SEAL (TR510E)	
205	A-7092-573-A	DD-80P BOARD, COMPLETE	ì	213	A-7072-354-A	CD-139 BOARD, COMPLETE (TR330E)	•
				213	A-7072-420-A	CD-139 BOARD, COMPLETE (TR510E)	
206	A-7092-572-A	VC-167P BOARD, COMPLETE (TR330E	3)				
206	A-7092-616-A	VC-167P BOARD, COMPLETE (TR510H	E)	214		2X7.5, +B TAPPING P TAIT (TR330	DE)
207	1-775-516-11	CABLE, FLEXIBLE FLAT 16P		214	3 947-268-01	2, +B TAPPING P TAIT (TR510E)	
* 208	3-965-897-01	FRAME, MI)		* 215	3-965-898-01	FRAME, LENS	
209	1-547-833-11	LENS, ZOOM (VCL-6310WA) (TR330H	3)	216	3-965-871-01	SCREW (for TRIPOD)	
209		LENS, ZOOM (VCL-5412WB) (TR510E)		217	A-7072-422-A	TZ-3 BOARD, COMPLETE (TR510E)	
			-	218	1-775-833 11	CABLE, FLEXIBLE FLAT 18P (TR516	Œ)
210	3-957-990-11	ADAPTOR (C), CCD FITTING (TR330	DE)	1C790	A-7030-369-A	CCD BLOCK ASSY(ICX055AK-11)(CCI) IMAGER)
210		ADAPTOR (H), CCD FITTING (TR510				(T)	R330E)
210	0 010 000 01			IC790	A-7030-495-A	. CCD BLOCK ASSY(ICX060AK-41)(CCI) IMAGER) R510E)

5-1-6. CASSETTE COMPARTMENT BLOCK SECTION



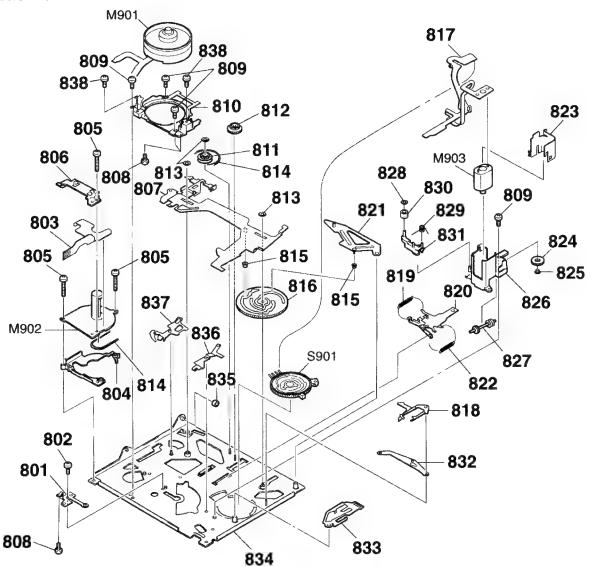
	Part No. A-7040-421-A	Description DAMPER ASSY	Remarks	705		Description RETAINER, GOOSENECK	Remarks
		STOP RING 1.5, TYPE -E CASSETTE COMPARTMENT ASSY		708	3-947-503-01	GEAR ASSY, GOOSENECK SCREW (M1.4X2.5)	
704	3-965-587-01	SPRING, TENSION	1	709	3-331-007-21	WASHEK	

5-1-7. LS CHASSIS BLOCK SECTION



Dof No	Part No	Description	Remarks i	Ref. No.	Part No.	Description	Remarks
				773		SPRING (PINCH), TENSION	
751		BASE (S) BLOCK ASSY, GUIDE		774		ROLLER, PINCH PRESS	
752		BASE (T) BLOCK ASSY, GUIDE		775		GEAR, T SOFT	
753	3-965-559-01		1	776		CLAW, T SOFT	
754		STOPPER (T), GB		777		DECK ASSY, REEL, S	
755	3-965-558-01	STOPPER (S)		(/ /	A 0010 00. 1		
756	3 065_556_01	STOPPER (S), GB		778	X-3945-396-1	BAND ASSY, TENSION REGULATOR	
750 757	3-965-553-01		ļ	779	3-945-756-01	SCREW (M1.4X3)	
757 758		SCREW (M1.4X2.5)		780	3-965-583-01	ARM, RVS	
759		RETAINER, TG4		781	3-965-580-01	SPRING, TENSION	
760		FP-355 FLEXIBLE BOARD		782	3-966-384-01	SPRING, T SOFT	
700	1-030-210-11	11 000 188.11228 1111					
761	396555201	HOLDER (T), SENSOR		783	3-965-578-01	SPRING, TENSION	
762		FP-221 FLEXIBLE BOARD		784	3-965-560-01		
763		HOLDER (S), SENSOR		785	3-965-561-01	PLATE, RELEASE, S RATCHET	
764		FP-356 FLEXIBLE BOARD		786		ARM ASSY, TG1	
765		ARM BLOCK ASSY, TG4		787	3-965-576-01	SPRING (TG1), TENSION	
105	N-1040 411 11	, man passer reserve					
766	3_965_574_01	SPRING, TORSION		788	3-965-567-01	LID OPEN	
767		SPRING (PINCH), TORSION		789	3-965-566-01	COVER, LS GUIDE	
768		GUIDE, LOCK		* 790	3-965-577-01	PLATE, CAM, LS	
769		SPRING (RATCHET), TENSION		791	3-965-569-01	ARM, EJ	
770	3-965-581-01			792	A-7040-427-A	CHASSIS (S1) ASSY, LS	
110	3-303-301-01	RESTORMANT I					
771	V 3045_304_1	ARM ASSY, PINCH		D001		2 DIODE GL453	
772		DECK ASSY, REEL, T		S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C.LOCK)	
112	A-0340-030-1	DON MOOT, MEDD, I					

5-1-8. MECHANISM CHASSIS BLOCK SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
801	3-965-525-01	GROUND, SHAFT		822	3-965-535-01	SPRING, TENSION (SILVER)	
802		SCREW (M1.7X1.4)		823	3-965-542-01	SHIELD, MOTOR	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	1	824	3-965-539-01	GEAR (A)	
804	3-965-545-01	SPACER, CAPSTAN		825	3-965-538-01	SLEEVE, MOTOR HOLDER	
805	3-965-549-01	SCREW (M1.4X6.5)		826	3-965-540-01	HOLDER, MOTOR	
806	3-966-349-01	HOLDER, FLEXIBLE		827	3-965-541-01	SHAFT, WORM	
807	X-3945-387-1	SLIDER ASSY, M		828	3-321-393-01	WASHER, STOPPER	
808	3-965-588-01	SCREW (M1.4)		829	3-965-724-01	SPRING, TORSION	
809	3-947-503-01	SCREW (M1.4X2.5)		830	A-7040-423-A	ROLLER BLOCK ASSY, HC	
810	A-7040-416-A	BASE BLOCK ASSY, DRUM		831	X-3945-407-1	ARM ASSY, HC ROLLER	
811	3-965-527-01	GEAR, CHANGE		832	3-965-531-01	ARM, GL	
812	3-965-544-01	GEAR, RELAY		833	3-965-530-01	PLATE (2), REGULATOR, TENSION	
813	3-331-007-21	WASHER		834	X-3945-386-1	CHASSIS ASSY, MECHANICAL	
814	3-965-546-01	BELT, TIMING		835	3 965-526-01	ROLLER, LS GUIDE	
815	3-965-533-01	ROLLER, LS		836	3-965-547-01	ARM, HC DRIVING	
816	3-965-528-01	GEAR, CAM		837	3-965-534-01	PLATE, PRESS, PINCH	
817	1-657-784-11	FP-220 FLEXIBLE BOARD		838	3 -966 819-01	SCREW +P 1.4X3	
818	3-965-529-01	PLATE, REGULATOR, TENSION	ł	M901	A-7048-806-A	DRUM BLOCK ASSY (DGH-OC2A-R)	
819	3-965-536-01	SPRING, TENSION (BLACK)		M902	8-835-531-01	MOTOR, DC SCE-0601A (CAPSTAN)	
820	X-3945-388-1	SLIDER ASSY, GL		M903	X -3945-401-1	MOTOR ASSY, DC (LOADING)	
821	3-965-532-01	ARM, LS		S901	1-762-436-11	SWITCH, ROTARY (ENCODER)	

5-2. ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board

The components identified by mark ♠ or dotted line with mark ♠ are critical for safety.

Replace only with part number specified.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- · -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- · CAPACITORS: $uF: \mu F$

- RESISTORS All resistors are in ohms. METAL: metal-film resistor METAL OXIDE: Metal Oxide-film resistor F: nonflammable
- · COILS uH: μH
- SEMICONDUCTORS In each case, u: μ , for example: uA...: μA..., uPA..., μPA..., $uPB...\;,\;\mu PB...\;,\;uPC...\;,\;\mu PC...\;,$ uPD..., μPD...

Ref. No.	Part No.	Description		Remarks	Ref. No.	Part No.	Description		Remarks
	A-7072-354-A	CD-139 BOARD, COMPLETE	(TR330E)		R793	1-218-895-11	METAL CHIP	100K 0.50% 1	/16W(TR510E)
		*******			R794	1-216-829-11		4.7K 5%	1/16W
	A-7072-420-A	CD-139 BOARD, COMPLETE	(TR510E)		R795	1-216-809 11	METAL CHIP	100 5%	1/16W
		******			R796	1-216-833-11	METAL CHIP	10K 5%	1/16W
		(Ref.	No. 2, 000	Series)		,			
		< CAPACITOR >				A-7072-359-B	CF-40 BOARD, (COMPLETE (TR33	OE)
C790	1-126-603-11	ELECT CHIP 4.7uF	20%	35V		A-7092-617-A	CF-40 BOARD,	COMPLETE (TR51)	Œ)
C791	1-164-346-11			16V			*****	****	
C792	1-126-607-11	ELECT CHIP 47uF	20%	4V				(Ref. No. 2	,000 Series)
C793	1-164-156-11	CERAMIC CHIP 0.1uF		25V					
C794	1-126-603-11	ELECT CHIP 4.7uF	20%	35V		3-831-441-XX	CUSHION (5)		
C795	1-162-919-11	CERAMIC CHIP 22PF !	5% 50V	(TR330E)			< BUZZER >		
		< CONNECTOR >			BU480	1-529-107-11	BUZZER, PIEZO	ELECTRIC	
CN790	1-691-354-21	CONNECTOR, FFC/FPC (ZI)	F) 16P				< CAPACITOR >		
		< IC >			C300	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
					C301	1-162-919-11	CERAMIC CHIP	22PF	5% 50V
IC790	A-7030-369-A	CCD BLOCK ASSY(ICX055A)	K-11) (CCD	IMAGER)	C302	1-162-919-11	CERAMIC CHIP	22PF	5% 50V
				(TR330E)	C303	1-104-847-11	TANTAL. CHIP	22uF	20% 4V
IC790	A-7030-495-A	CCD BLOCK ASSY(ICXO60A)		IMAGER) (TR510E)	C304	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
					C305	1-162-968-11	CERAMIC CHIP	0.0047uF	10% 50V
		< COIL >			C306	1-164-360-11	CERAMIC CHIP	0.1uF	16V
					C308	1-104-847-11	TANTAL. CHIP	22uF	20% 4V
L790	1-412-963-11	INDUCTOR 100uH			C310		CERAMIC CHIP	0. 1uF	16V
					C311	1-164-360-11	CERAMIC CHIP	0. 1uF	16V
		< TRANSISTOR >					annua au	0.045.5	100 100
					C312		CERAMIC CHIP	0.047uF	10% 16V
Q790	8-729-117-73		14		C313		CERAMIC CHIP	0. 1uF	16V(TR510E)
Q791	8-729-232-86	TRANSISTOR 2SK1875			C314		TANTAL. CHIP	1uF 20% 0.047uF	16V(TR510E) 10% 16V
		DDCTGWOD.			C315		CERAMIC CHIP	0.047uF	10% 16V
		< RESISTOR >			C316	1 100-1/0-11	CERAMIC CHIP	U. U.1 U.	100 101
R791	1-216-839-11	METAL CHIP 33K	5% 1/16W	(TR330E)	C317	1-165-176-11	CERAMIC CHIP	0.047uF	10% 16V
R791	1-216 840-11		5% 1/16W	(TR510E)	C318	1-165-176-11	CERAMIC CHIP	0.047uF	10% 16V
R792	1-216-819-11		5% 1/16W	(TR330E)	C319	1-165-176 -11	CERAMIC CHIP	0.047uF	10% 16V
R792	1-216-820-11	METAL CHIP 820	5% 1/16W	(TR510E)	C320	1-165-176-11	CERAMIC CHIP	0.047uF	10% 16V
R793	1-216-849-11		5% 1/16W	(TR330E)	C321	1-165-176-11	CERAMIC CHIP	0.047uF	10% 16V

CF-40

Ref. No.	Part No.	Descr				Remarks	Ref. No.	Part No.	Descriptio			Remarks
C323	1-135-259-11			10uF	20%	6.3V			< IC LINK >			
C325	1-104-850 11			6.8uF	20%	10V	A DCOOL	1 570 100 01	T TANK TO			
C326	1-165-176-11			0.047uF	10%	16V	₩ PS301	1-576-122-21	LINK, IC			
C327 C328	1-165-176-11 1-162-970-11			0.047uF 0.01uF	10% 10%	16V 25V			< TRANSISTO	D		
(320	1-102-970-11	CERAMI	CHIF	O. Olur	10%	234			< 1KAN31310	κ >		
C336	1-162-970-11	CERAMIO	CHIP	0.01uF 10%	25V (TR510E)	Q301	8-729-823-16	TRANSISTOR	2SC4555-	5. 6. 1	7 (TR510E)
							Q302	8-729-032-00	TRANSISTOR	2SJ381-T	D	(TR510E)
		< CONNI	ECTOR >				Q303	8-729-402-81	TRANSISTOR	XN4501		(TR510E)
							Q304	8-729-015-76	TRANSISTOR	UN5211		(TR510E)
CN480	1-774-054-21	CONNEC	ror, ffc/	FPC (ZIF) 4	5P		Q305	8-729-015-76	TRANSISTOR	UN5211		
	1-691-346-11											
CN482	1-764-703-11	CONNEC	ror, ffc/	FPC (LIF) 4	P				< RESISTOR	>		
		- DIODI	7 .				Pagg	1 016 050 11	METAL CUID	470V	- 0/	1 /1 CW
		< DIODI	2 >				R300 R301	1-216-853-11 1-216-853-11		470K 470K		1/16W 1/16W
D300	8-719-404-49	DIODE	MA111				R303	1-216-853-11		470K 470K		1/16W
D300	8-719-404-49		MA142WK				R304	1-216-817-11		470K 470	5%	1/16W
D301	8-719-420-14		MA8082-				R304	1-216-864-11		0	5%	1/16W
D303	8-719-420-14		MA8082-				Roos	1-210-004-11	METAL CITT	V	JA	1/ 10#
D310	8-719-039-99		UMZ8.2T				R306	1216 -801 -11	METAL CHIP	22	5%	1/16W
D310			R510E: AEP.				R307	1-216-853-11		470K		1/16W
	(1	ROOUL, II	torob.nbr	/ OIL/			R308	1-216-853-11		470K		1/16W
D312	8-719-420-14	DIODE	MA8082-	M			R309	1-216-853-11		470K		1/16W
D314	8-719-404-49		MA111 (R310	1-216-827-11		3. 3K		1/16W
D315	8-719-404-49		MA111 (0.0	2, 20
№ D316	8-719-421-27		MA728				R311	1-216-841-11	METAL CHIP	47K	5%	1/16W
D317	8-719-404-49		MA111				R312	1-216-821-11		1K	5%	1/16 W
							R313	1-216-821-11	METAL CHIP	1K	5%	1/16W
D318	8-719-404-49	DIODE	MA111				R314	1-216-821-11	METAL CHIP	1 K	5%	1/16W
D321	8-719-420-14	DIODE	MA8082-	M			R315	1-216-821-11	METAL CHIP	1K	5%	1/16W
D323	8-719-404-49	DIODE	MA111									
D324	8-719-420-14	DIODE	MA8082-	M			R316	1-216-821-11	METAL CHIP	1K	5%	1/16W
D325	8-719-420-14	DIODE	MA8082-	M			R317	1-216-821-11	METAL CHIP	1 K	5%	1/16W
							R318	1-216-821-11		1K	5%	1/16W
D326	8-719-420-14		MA8082-				R319	1-216-821-11		1K	5%	1/16W
D327	8-719-420-14		MA8082-			•	R320	1-216-821-11	METAL CHIP	1K	5%	1/16W
D328	8-719-420-14		MA8082-				2004		ADDAY GUID	4.77	= 0.	
D480	8-719-951-20	DIODE	BR1102W					1-216-821-11		1K	5%	1/16W
		. EII TI	ep .				R322	1-216-821-11 1-216-833-11		1K	5%	1/16W
		< FILTI	zr >				R323 R324	1-216-864-11		10K 0	5% 5%	1/16W 1/16W
EI 300	1-411-527-21	COII (nsc				R324	1-216-864-11		0	5%	1/16W
1.1300	1-411-027-21	corp, c	750				1020	1-210-004-11	METAL CITT	U	370	1/10#
		< HOLDI	ER >				R326	1-216-853-11	METAL CHIP	470K	5%	1/16W
							R327	1-216-864-11		0	5%	1/16W
∱ HL480	1-550-104-11	HOLDER	BATTERY				R331	1-216-864-11	METAL CHIP	0	5%	1/16W
							R332	1-216-864-11	METAL CHIP	0	5%	1/16W(TR330E)
		< IC >					R333	1-216-853-11	METAL CHIP	470K	5%	1/16W
	8-759-298-10		-8423NFS-	T2			R334	1-216-845-11		100K	5%	1/16W
	8-759-059-05		1596CPW				R335	1-216-817-11		470	5%	1/16W
IC303	8-759-364-02	IC ME	889082PFV	-G-105-BND			R336	1-216-833-11		10K	5%	1/16W(TR510E)
		TACE					R337	1-216-825-11				1/16W(TR510E)
		< JACK	>				R338	1-216-857-11	METAL CHIP	1M	5%	1/16W(TR510E)
J480	1-565-276-21	TACK 1	ILTRA SMA	LL 1P (LANC)		R339	1-216-833-11	METAL CHIP	10K	5%	1/16W(TR510E)
, 100	210 210 21	J	Omi		•		1	1-216-833-11		10K		1/16W(TR510E)
		< COIL	>				l	1-216-853-11		470K		1/16W
							l	1-216-853-11		470K		1/16W
L300	1-414-078-11	INDUCTO	OR 10uH					1-216-853-11		470K		1/16W
								Notes The cor				

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Descript	ion		Remarks	Ref. No.	Part No.	Descri	ption		Rei	marks
R345	1-216-833-11	METAL CHI	IP 10K	5%	1/16W			< SWITC	H >			
R346	1-216-821-11	METAL CHI	IP 1K	5%	1/16W							
R350	1-216-833-11			5%	1/16W	S300	1-553-977-71	SWITCH,	SLIDE	(D ZOOM) (TR510E)	
R351	1-216-821-11			5%	1/16W	S301	1-762-333-21	SWITCH,	TACTILE	(TITLE)		
R352	1-216-821-11			5%	1/16W	S480	1-762-333-21	SWITCH,	TACTILE	(DATE(+))		
NJJ2	1-210-021-11	METTID CIT	111	070	2, 2011	S481	1-762-333-21))	
Data	1-216-864-11	METAL CHI	[P 0	5%	1/16W	S482	1-762-333-21					
R353	1-216-864-11			5%	1/16W	0402	1 102 000 21	01171011,	11101122	(000111211 11		
R354						C102	1-553-977-71	CWITCH	SI IDE	(REC MODE)		
R355	1-216-864-11			5% =×	1/16W	S483	1-762-333-21				T)	
R356	1-216-864-11			5%	1/16W	S484						
R357	1-216-831-11	METAL CH	IP 6.8K	5%	1/16W	S485	1-570-113-11			(START/STO		TVI 7 \
						S486	1-570-113-11	SWIICH,	SLIDE	(STEADY SH		
R358	1-216-864-11	METAL CH		5%	1/16W	1				(2017/11777		510E)
R359	1-216-805-11	METAL CH	IP 47	5%	1/16W	S487	1-553-977-71	SWITCH,	SLIDE	(COMMANDER)	
R362	1-216-827-11	METAL CH	IP 3.3K	5%	1/16W							
R363	1-216-821-11	METAL CH	IP 1K	5%	1/16W	S488	1-553-977-71	SWITCH,	SLIDE	(BEED)		
R364	1-216-864-11			5%	1/16W	S489	1-762-442-21	SWITCH,	ROTARY	(PROGRAM A	E)	
R365	1-216-864-11	METAL CH	IP 0	5%	1/16W(TR510E)			< VIBRA	TOR >			
R370	1-216-864-11			5%	1/16W							
	1-216-864-11			5%	1/16W	X302	1-579-463-11	VIRRATO	R. CRYST/	AL 32KHz		
R371	1-216-864-11			5%	1/16W		1-579-369-21					
R372				5%	1/16W	ATLOUT	1-013-003 21	VIDIGITO	It TOMETE			
R373	1-216-821-11	METAL CH	IP IN	376	1/10#							
		ADDRAL OU	TD 117	- 0/	1 /1 CW		A-7092-573-A	מחפ מת	BUYDD C	MDI ETE		
R374	1-216-821-11			5%	1/16W		A-1032-313-A		*****			
R375	1-216-853-11				1/16W			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			1,000 Se	(00;
R376	1-216-821-11			5%	1/16W					(Rel. No.	1,000 56	ries)
R377	1-216-821-11			5%	1/16W			CIPIC	TMOD			
R378	1-216-821-11	METAL CH	IP 1K	5%	1/16W			< CAPAC	TTOR >			
R379	1-216-821-11	METAL CH	IP 1K	5%	1/16W	C001	1-164-004-11	CERAMIC	CHIP	0. 1uF	10%	25V
R380	1-216-821-11	METAL CH	IP 1K	5%	1/16W	C002	1-164-004-11	CERAMIC	CHIP	0. 1uF	10%	25V
R381	1-216-821-11			5%	1/16W	C003	1-164-004-11	CERAMIC	CHIP	0. 1uF	10%	25V
R384	1-216-833-11			5%	1/16W	C004	1-162-957-11	CERAMIC	CHIP	220PF	5%	50V
R386	1-216-833-11			5%	1/16W	C005	1-162-967-11	CERAMIC	CHIP	0.0033uF	10%	50V
NOOU	1-210-055-11	METAL ON	101	O.A	1/ 1011		2 10 10 1					
R387	1-216-833-11	METAL CH	IP 10K	5%	1/16W	C006	1-162-964-11	CERAMIC	CHIP	0.001uF	10%	50V
	1-216-835-11				1/16W	C007	1-164-227-11			0.022uF	10%	25V
						C008	1-162-964-11			0.001uF	10%	50V
R390	1-216-849-11				1/16W		1-164-245-11			0.001ur	10%	25V
R391	1-216-821-11			5%		C009				10uF	20%	16V
R392	1-216-826-11	METAL CH	IP 2.7K	5%	1/16W	C010	1-128-004-11	ELECT	HIL	Tour	20%	104
					. (4.0)		1 100 004 **	DI DOW	THE	10.E	200	1 <i>6</i> V
R393	1-216-809-11	METAL CH	IP 100	5%	1/16W	C011	1-128-004-11			10uF	20%	16V
R394	1-218-290-11	METAL GL	AZE 6.2K	5%	1/16W	C012	1-128-004-11		CHIP	10uF	20%	16V
R395	1-216-833-11	METAL CH	IP 10K	5%	1/16W(TR510E)	C013	1-128-065-11			68uF	20%	10V
R396	1-216-821-11	METAL CH	IIP 1K	5%	1/16W	C014	1-162-968-11	CERAMI(CHIP	0.0047uF	10%	50V
R397	1-216-845-11			5%	1/16W	C016	1-162-964-11	CERAMI(CHIP	0.001uF	10%	50V
11001												
R398	1-216-845-11	METAL CH	IIP 100K	5%	1/16W	C018	1-162-964-11	CERAMIO	CHIP	0.001uF	10%	50V
R399	1-216-851-11				1/16W	C019	1-162-964-11	CERAMIO	CHIP	0.001uF	10%	50V
	1-216-827-11				1/16W	C022	1-162 964-11			0.001uF	10%	50V
R490				5%	1/16W	C024	1-162-964-11			0.001uF	10%	50V
R494	1-216-864-11					C025	1-162-964-11			0.001uF	10%	50V
R495	1 216-864-11	METAL CH	IIP 0	5%	1/16W	1020	1-104-304-1	CERTAINIT	01111	o. oorur	10%	501
		LIDBAT CT		pm 0.	1 /1 (1)	0000	1 169 015 11	CEDANT	מוער י	10PF	0.5PF	50V
R496	1-216-797-11			5%	1/16W	C026	1-162-915-11				0.5PF	50V
R497	1-216-864-11			5%	1/16W	C027	1-162-915-11			10PF	U. OFF	
R499	1-216-836-11	L METAL CH	IIP 18K	5%	1/16W	C028	1-165-178-11			6. 8uF		16V
						C029	1-165-178-13			6.8uF		16V
						C030	1-165-178-13	L CERAMIC	CHIP	6.8uF		16V

DD-80P

Rof No	Part No.	Description			ī	Remarks	Ref No	Part No.	Description			Remarks
			4 7. F	200	_	TR330E)	L012	1-412-056-11				- Remains
C031	1-113-606-11 1-115-170-91		4.7uF 4.7uF	20%		TR510E)	L012 L013	1-412-056-11				
C031 C032	1-113-170-91		4.7ur 4.7uF			TR330E)	L013 L014	1-412-056-11				
	1-115-170-91		4.7ur 4.7uF			TR510E)	L014 L015	1-412-066-21				
C032 C033	1-113-170-91					rr330E)	L013	1-412-056-11				
033	1-113-000-11	SOLID CHIP	4. /ur	20%	107 (IKSSUE)	L016	1-412-050-11	INDUCTOR CHI	r 4. / un		
C033	1-115-169-91	TANTALUM	10uF	20%	6. 3V (TR510E)	L017	1-412-056-11	INDUCTOR CHI	P 4.7uH		
C034	1-113-606-11		4.7uF	20%	10V(TR330E)	L018	1-412-056-11	INDUCTOR CHIL	P 4.7uH		
C034	1-115-170-91	TANTALUM	4.7uF	20%	10V(TR510E)						
C035	1-164-505 11	CERAMIC CHIP	2. 2uF			16V			< IC LINK >			
C036	1-113-606-11	SOLID CHIP	4.7uF	20%	10V(TR330E)						
							⚠ PS002	1-533-284 11	LINK, CHIP I	C		
C036	1-115-169-91	TANTALUM	10uF	20%	6. 3V (TR510E)	⚠ PS003	1-533-284-11	LINK, CHIP I	C		
C037	1-164-505-11	CERAMIC CHIP	2.2uF			16V	⚠ PS004	1-533-284-11	LINK, CHIP I	С		
C038	1 128 004-11	ELECT CHIP	10uF		20%	16V						
C039	1-128-004-11	ELECT CHIP	10uF		20%	16V			< TRANSISTOR	>		
C040	1-128-004-11	ELECT CHIP	10uF		20%	16V						
							Q001	8-729-033-14		FP107-TL		
C041	1-128-004-11	ELECT CHIP	10uF		20%	16V	Q002	8-729-033-14		FP107-TL		
C042	1-128-004 11	ELECT CHIP	10uF		20%	16V	Q003	8-729-804-41	TRANSISTOR	2SB1122-	ST-TD	
C043	1-107-682-11	CERAMIC CHIP	1uF		10%	16V	Q004	8-729-033-14	TRANSISTOR	FP107-TL		
C044	1-128-004-11	ELECT CHIP	10uF		20%	16V	Q005	8-729-033-14	TRANSISTOR	FP107-TL		
C045	1-128-006-11	ELECT CHIP	4.7uF		20%	25V						
							Q006	8-729-033-14		FP107-TL		
C046	1 128-006-11	ELECT CHIP	4.7uF		20%	25V	Q007	8-729-030-75	TRANSISTOR	2SK2316-	TD	
C047	1-162-964-11	CERAMIC CHIP	0.001u	F	10%	50V	Q008	8-729-402-42	TRANSISTOR	UN5213-T	X	
C048	1-162-964-11	CERAMIC CHIP	0.001u	F	10%	50V						
									< RESISTOR >			
		< CONNECTOR >										
							R001	1-216-841-11		47K	5%	1/16W
* CN003	1-691-935-11	CONNECTOR, BOAR	D TO BO	ARD 3	8P		R002	1-216-835-11		15K	5%	1/16W
							R003	1-216-837-11		22K	5%	1/16W
		< DIODE >					R004	1-216-829-11			5%	1/16W
							R005	1-216 839-11	METAL CHIP	33K	5%	1/16W
D001	8-719 989-33									0.011		- 4- 077
D002	8-719-420-14	DIODE MA8082-	М				R006	1-216-837-11		22K	5%	1/16W
		***						1-216-821-11		1K	5%	1/16W
		< IC >					R008	1-216-813-11		220	5%	1/16W
T.0001	0.550.050.00	TC CN104019DW	TC.				R009	1-216-841-11		47K	5% =~	1/16W
10001	8-759-350-29	IC SN104213PM	-16				R010	1-216-845-11	METAL CHIP	100K	5%	1/16W
		< JACK >					R014	1-216-821-11	METAL CHIP	1K	5%	1/16W
							R015	1-216-819-11	METAL CHIP	680	5%	1/16W
J001	1-537-241-11	TERMINAL BOARD	(BATTER	Y)			R016	1-216-864-11	METAL CHIP	0	5%	1/16W
•							R017	1-216-833-11	METAL CHIP	10K	5%	1/16W
		< COIL >					R018	1-216-833-11	METAL CHIP	10K	5%	1/16W
L002		COEL, CHOKE 10u					R019	1-216-833-11		10K	5%	1/16W
L003		COEL, CHOKE 10u					R020	1-216-835-11		15K	5%	1/16W
L004		COEL, CHOKE 10u					R021	1-216-839-11		33K	5%	1/16W
L005		COIL, CHOKE 47u					R022	1-216-831-11		6.8K	5%	1/16W
L006	1-409-533-11	COIL, CHOKE 47u	Н				R023	1-216-797-11	METAL CHIP	10	5%	1/16 W
L007	1 409-531-11	COIL, CHOKE 22u	Н				R024	1-216 837 11	METAL CHIP	22K	5%	1/16W
L008		COIL, CHOKE 47u					R025	1-216-841-11		47K	5%	1/16W
L009		COIL, CHOKE 22u					R026	1-216-864-11		0	5%	1/16W
L009		INDUCTOR CHIP 4					R027	1-216-833-11		10K	5%	1/16W
L010		INDUCTOR CHIP 4					R033	1-216-833-11		10K	5%	1/16W
DVII	_ 11W 000 11	I.DOCION OIIII T					11000			~ 011		-/ 1

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.

Replace only with part number specified.

DD-80P FP-249 JK-129 MA-238

5%

100

1/16W

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description			Remarks
	man and the second	< SWITCH >			A-7072-358-A	MA-238 BOARD,			

S001		SWITCH, PUSH (1 KEY) (START/ST	OP)				(Ref. M	No. 2, 000	Series)
S002		SWITCH, PUSH (1 KEY) (EJECT)				OAD AGT TOD			
S003		SWITCH, ROTARY (ZOOM SW)				< CAPACITOR >			
S004	1-572-688-11	SWITCH, PUSH (1 KEY) (STANDBY)		0004	1 100 007 11	CEDAMIC CUID	100PF	5%	50V
		mp av gropump		C964 C978	1-162-927-11 1-162-970-11		0.01uF	10%	
		< TRANSFORMER >		C978	1-164-004-11		0.01th	10%	
m 004	1 400 164 01	TRANSPORTED DC/DC CONTERTED		C982	1-165 128-11		0. 22uF	10%	16V
T001	1-429-164-21	TRANSFORMER, DC/DC CONVERTER		C982	1-162-927-11		100PF	5%	50V
				0303	1 102 021 11	OBIGERIZE VIII			
		FP-249 BOARD		C984	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
		**********		C985		CERAMIC CHIP	0.1uF	10%	25V
		(Ref. No. 5, 00	0 Series)	C986		CERAMIC CHIP	0.1uF	10%	25V
		(102111012)		C988	1-164-346-11	CERAMIC CHIP	1uF		16V
	1-658-214-11	FP-356 FLEXIBLE BOARD		C990	1-126-607-11	ELECT CHIP	47uF	20%	4V
		HOLDER (S), SENSOR							
		HOLDER (T), SENSOR		C991	1-164-245-11	CERAMIC CHIP	0.015uF		
				C993	1-124-779-00	ELECT CHIP	10uF	20%	16V
		< HOLE ELEMENT >							
]		< CONNECTOR >			
H001	8-719-033 37	ELEMENT, HALL HW-105C					. (DDA (T.T.	\	
H002	8-719-033-37	ELEMENT, HALL HW-105C				CONNECTOR, FFO) 8P	
				CN953	1-580-055-21	PIN, CONNECTOR	R 2P		
		< TRANSISTOR >				DIODE .			
						< DIODE >			
Q 001		PHOTO TRANSISTOR PT4850F		20051	0 710 404 40	DIODE MA111			
Q002	8-729-907-25	5 PHOTO TRANSISTOR PT4850F		D951	8-719-404-49 8-719-404-49				
		CHILADOLI		D952	8-719-404-49	DIODE MAIII			
		< SWITCH >				< IC >			
C001	1 600 614 11	SWITCH, PUSH (3 KEY)(REC PROOF	7)			. 10			
S001 S002		SWITCH, PUSH (1 KEY) (C.C.LOCK)		IC952	8-759-339-63	IC NJM2118V	-TE2		
3002	1-372-080-11	Swifeli, Tooli (Tibi) (e.e. Beek)			8-749-925-07				
	A-7072-353-A	A JK-129 BOARD, COMPLETE				< JACK >			

		(Ref. No. 2, 0	00 Series)	J951	1-568-027-11	JACK, SMALL T	YPE 1P (MI	(C)	
		< CONNECTOR >				< COIL >			
				1.050	1 410 000 1	INDUCTOD 1			
* CN060	1-764-521-13	1 CONNECTOR, FFC/FPC (ZIF) 12P		L952		I INDUCTOR 1uH I INDUCTOR 1uH			
		n Tonn		L953	1-412 939-1.	I INDUCTOR TUR			
		< DIODE >				< TRANSISTOR	,		
5040	0 = 0 00= 5	O DIODE MAIAQUII				< IMMOISTOR			
D060	8-719-027-50			0951	8_729_420_2	1 TRANSISTOR	2SB1218A-0	ORS-TX	
D061	8-719-404-4			4331	0 123 120 2	i ilanozoron			
D063	8-719-039-99	(TR330E, TR510E: AEP/UK)				< RESISTOR >			
D069	8-719-039-99								
DODS		(TR330E, TR510E: AEP/UK)		R972	1-216-864-1	1 METAL CHIP	0 ;	5% 1/	16W
		(22000)		R974	1-216-864-1	1 METAL CHIP	0 5		16W
		< JACK >		R978	1-216-823-1	1 METAL CHIP	1.5K		16 W
		-		R979	1-216 819-1	1 METAL CHIP	680		16W
1060	1-537-726-1	1 TERMINAL BOARD (VIDEO/AUDIO C	UT)	R980	1-216-830-1	1 METAL CHIP	5.6K	5% 1/	16W
3,200									4 699
				R981		1 METAL CHIP			′16W
				R982		1 METAL CHIP	6.8K		/16W
				R983		1 METAL CHIP			/16W
				P007	1 216 200 1	1 METAL CHIP	100	5% 1/	/16W

R997

1-216-809-11 METAL CHIP

PW-108 TZ-3

Ref. No.	Part No. A 7072-356-A	Description PW-108 BOARD, (Re	emarks R	ef. No.	Part No.	Description < COIL >			Remarks
		*****		000 C-		1.650	1 414 070 11	TAIDUCTOD 10.41			
			(Ref. No. 2,	.000 Se	eries)	L650		INDUCTOR 10uH			
		CONTRACTOR				L651		INDUCTOR 10uH	10.11		
		< CONNECTOR >				L652	1-412-058-11	INDUCTOR CHIP	IUuH		
CN583	1-764-703-11	CONNECTOR, FFC.	/FPC (LIF) 4P					< TRANSISTOR >			
		< SWITCH >				Q650	8-729-402-42	TRANSISTOR U	N5213		
		SWITCH, PUSH (SWITCH, PUSH (< RESISTOR >			
3431	1-372-407-21	Switten, Toshi (I REI/ (IERIEN		1.1	R650	1-216-837-11	METAL CHIP	22K	5%	1/16W
						R651	1-216-837-11	5 A A	22K	5%	1/16W
	A_7072_422_A	TZ-3 BOARD, COI	MPLETE (TRS10E	(3		R652	1-216-837-11		22K	5%	1/16W
	N TOTE TEE N	*********		4)		R653	1-216-837-11		22K	5%	1/16W
			(Ref. No. 5.	.000 Se	eries)	R654	1-216-837-11		22K	5%	1/16W
		< CAPACITOR >			İ	R655	1-216-837-11	METAL CHIP	22K	5%	1/16W
						R656	1-216-803-11	METAL CHIP	33	5%	1/16 W
C650	1-164-004-11	CERAMIC CHIP	0.1uF 1	10%	25V	R658	1-216-833-11	METAL CHIP	10K	5%	1/16W
C651	1-164-004-11	CERAMIC CHIP	0.1uF 1	10%	25V	R659	1-216-833-11	METAL CHIP	10K	5%	1/16W
C652	1-104-908-11	TANTAL. CHIP	47uF 2	20%	4V	R660	1-218-911-11	METAL CHIP	470K	0.50%	1/16W
C653	1-104-908-11	TANTAL. CHIP	47uF 2	20%	4V						
C654	1-135-259-11	TANTAL. CHIP	10uF 2	20%	6.3V	R661	1-218-911-11	METAL CHIP	470K	0.50%	1/16W
						R662	1-218-911-11	METAL CHIP	470K	0.50%	1/16W
C655	1-164-156-11	CERAMIC CHIP	0.1uF 2	25V	1	R663	1-218-911-11	METAL CHIP	470K	0.50%	1/16W
C656		CERAMIC CHIP	0.22uF 1	10%	25V	R664	1-216-833-11	METAL CHIP	10K	5%	1/16W
C657		CERAMIC CHIP			25V	R665	1-216-850-11	METAL CHIP	270K	5%	1/16W
C658	1-164-245-11	CERAMIC CHIP		10%	25V						
C659		CERAMIC CHIP	0.015uF 1	10%	25V	R666	1-216-850-11	METAL CHIP	270K	5%	1/16W
						R667	1-216-833-11	METAL CHIP	10K	5%	1/16W
C660	1-128-257-21	ELECT CHIP	33uF 2	20%	10V	R668	1-216-835-11	METAL CHIP	15K	5%	1/16W
C661	1-128-257-21		33uF 2	20%	10V	R669	1-216-835-11	METAL CHIP	15K	5%	1/16W
C663		CERAMIC CHIP	100PF 5	5%	50V	R670	1-216-845-11	METAL CHIP	100K	5%	1/16W
C664	1-162-953-11	CERAMIC CHIP			50V						
C665	1-162-568-11	CERAMIC CHIP	0.33uF 1	10%	16V	R671	1-216-845-11	METAL CHIP	100K	5%	1/16 W
						R672	1-216-845-11	METAL CHIP	100K	5%	1/16W
C666	1-162-568-11	CERAMIC CHIP	0.33uF 1	10%	16V	R673	1-216-821-11	METAL CHIP	1K	5%	1/16W
C667	1-164-156-11	CERAMIC CHIP	0.1uF		25V	R674	1 -216 -845 -11	METAL CHIP	100K	5%	1/16W
C668	1-135-259-11	TANTAL. CHIP	10uF 2	20%	6.3V	R675	1-216-821-11	METAL CHIP	1K	5%	1/16W
C669	1-162-970-11	CERAMIC CHIP	0.01uF 1	10%	25V						
C670	1-162 970-11	CERAMIC CHIP	0.01uF 1	10%	25V	R676	1-216-857-11	METAL CHIP	1M	5%	1/16W
						R679	1-216-864-11	METAL CHIP	0	5%	1/16W
C671	1-135-259-11	TANTAL. CHIP	10uF 2	20%	6.3V	R681	1-216-864-11	METAL CHIP	0	5%	1/16W
C672		CERAMIC CHIP	0.01uF 1	10%	25V	R683	1-216-864-11	METAL CHIP	0	5%	1/16W
C673	1-162 970-11	CERAMIC CHIP	0.01uF 1	10%	25V	R685	1-216-864-11	METAL CHIP	0	5%	1/16W
C674		CERAMIC CHIP	0.01uF 1	10%	25V						
C675		TANTAL. CHIP	10uF 2	20%	6.3V			< SENSOR >			
		< CONNECTOR >						SENSOR, ANGULA SENSOR, ANGULA			
CN650	1-691-356-21	CONNECTOR, FFC.	/FPC (ZIF) 18F	P				< VIBRATOR >			
		< IC >									
						X650	1-579-553-11	VIBRATOR			
IC650	8-759-080-34	IC TA75W01FU	-TE12R								
	8-759-058-45	•	(TE2)								
	8-759-234-77										
	8-759-234-77										
10654	9 750 949 79	IC MR88102PF	V_C_RND_RP								

IC654 8-759-248-78 IC MB88102PFV-G-BND-ER

IC655 8-752-867-95 IC CXP81120-016R

Ref. No.	Part No.	Description		Re	marks	Ref. No.	Part No.	Description		Re	emarks
	A-7092-572-A	VC-167P BOARD,	COMPLETE	(TR330E)		C148	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
	11 1002 012 11	******		, ,			1-164-227-11	CERAMIC CHIP	0.022 u F	10%	25V
	A-7092-616-A	VC 167P BOARD,	COMPLETE	(TR510E)		C150	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
		******		, ,		C152	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
			(Ref.N	lo. 1, 000 S	eries)	C153	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
		< CAPACITOR >				C154	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
		< Chincilon >					1-162-970-11		0.01uF	10%	25V
C061	1-104-852-11	TANTAL CHIP	22uF	20%	6.3V	C156	1-164-227-11		0. 022uF	10%	25V
C072	1-104-852-11		0. 1uF	2010	25V	C157	1-162-921-11		33PF	5%	50V
C072	1-104-150-11		10uF	20%	6. 3V	C160	1-109-982-11		luF	10%	10V
C075	1-162-970-11		0.01uF	10%	25V	0100	1 100 000 11	OBIGENIZO VIIII	200	20.0	
C076	1-164-156-11		0. 1uF	10%	25V	C162	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
COTO	1-104-130-11	CEIGIM10 CITT	0.101		201	C163	1-162-970-11		0.01uF	10%	25V
C077	1-164-346-11	CERAMIC CHIP	1uF		16V	C164	1-162-922-11		39PF	5%	50V
C078	1-135-259-11		10uF	20%	6.3V	C165	1-162-920-11		27PF	5%	50V
C101		CERAMIC CHIP	22PF	5%	50V	C166	1-162-958-11		270PF	5%	50V
C101	1-162-919-11		22PF	5%	50V	2200					
C102		CERAMIC CHIP	0.01uF	10%	25V	C167	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C103	1-102-570-11	CERAMIC CITI	0.0101	10%	201	C168		CERAMIC CHIP	47PF	5%	50V
C104	1 162 070 11	CERAMIC CHIP	0.01uF	10%	25V	C169		CERAMIC CHIP	0.01uF	10%	25V
C104 C106		CERAMIC CHIP	0.01th	10%	25V	C170		CERAMIC CHIP	1uF	10%	10V
C106		CERAMIC CHIP	100PF	5%	50V	C171		CERAMIC CHIP	2. 2uF	1070	16V
		CERAMIC CHIP	82PF	5%	50V	01/1	1-104-000-11	CDIMMITO OTHER	2.201		101
C108 C109		CERAMIC CHIP	100PF	5%	50V	C202	1_135_259_11	TANTAL. CHIP	10uF	20%	6.3V
C109	1-102-921-11	CERAMIC CITI	10011	370	301	C203		CERAMIC CHIP	0.047uF 10%		
C110	1 164 217 11	CERAMIC CHIP	150PF	5%	50V	C204		CERAMIC CHIP	0. 1uF		25V
C110		CERAMIC CHIP	0. 1uF	370	25V	C205		CERAMIC CHIP	1uF	10%	10V
C111		TANTAL. CHIP	47uF	20%	6. 3V	C206		CERAMIC CHIP	1uF	10%	10V
C112		CERAMIC CHIP	0.01uF	10%	25V	0200	1 100 002 11	ODIALITO OTTA	100	2074	
C113		CERAMIC CHIP	0. 022uF	10%	25V	C207	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
0114	1-104-227-11	CERTAINTE CHIT	0. 022di	10%	201	C208		CERAMIC CHIP	0.47uF		25V
C115	1 164 227 11	CERAMIC CHIP	0. 022uF	10%	25V	C209		CERAMIC CHIP	1uF	10%	10V
C113		CERAMIC CHIP	0. 022th	10%	25V	C210		TANTAL. CHIP	10uF	20%	6.3V
C116		CERAMIC CHIP	0. 01th	10%	25V	C211		CERAMIC CHIP	0.01uF	10%	25V
C117		TANTAL. CHIP	47uF	20%	6. 3V	0211	1 102 070 11	ODIGENIO ONII	010101	2070	
C119		CERAMIC CHIP	330PF	5%	50V	C212	1-164-005-11	CERAMIC CHIP	0.47uF		25V
CIIS	1-102-959-11	CERTAIN CHILI	55011	070	001	C213		TANTAL. CHIP	22uF	20%	6.3V
C120	1 162-070-11	CERAMIC CHIP	0.01uF	10%	25V	C214		CERAMIC CHIP	0. 01uF	10%	25V
C120		TANTAL. CHIP	10uF	20%	6. 3V	C215		CERAMIC CHIP	0. 47uF		25V
C121		CERAMIC CHIP	330PF	5%	50V	C216	1-126-246-11		220uF	20%	4V
C122		CERAMIC CHIP	0.01uF	10%	25V	0=10					
C123		CERAMIC CHIP	0. 01uF	10%	25V	C217	1-135-149-21	TANTALUM CHIP	2. 2uF	20%	10V
0124	1-102-510 11	CENTRALITY CITE	0.014	207		C218		CERAMIC CHIP	100PF	5%	50V
C125	113525911	TANTAL. CHIP	10uF	20%	6.3V	C219		TANTAL. CHIP	10uF	20%	6.3V
C123		CERAMIC CHIP	0. 01uF	10%	25V	C220		CERAMIC CHIP	27PF	5%	50V
C128		CERAMIC CHIP	0.01uF	10%	25V	C223		CERAMIC CHIP	0. 1uF		25V
C128		CERAMIC CHIP	0. 1uF	10,0	25V	V22 6					
C129		CERAMIC CHIP	0. 0047u	F 10%	50V	C224	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C130	1-102-300-11	CERTAINTO CHITI	0.00114	10%	001	C225		CERAMIC CHIP	120PF	5%	50V
C134	1_162_070_11	CERAMIC CHIP	0. 01uF	10%	25V	C226		CERAMIC CHIP	470PF	2%	50V
C134		TANTAL. CHIP	22uF	20%	6. 3V	C227		TANTAL. CHIP	22uF	20%	4V
C136		CERAMIC CHIP	0. 1uF	200	25V	C228		CERAMIC CHIP	0.047uF 10%		
C136		CERAMIC CHIP	0. 1tar 0. 01uF	10%	25V		1 200 210 11			(*	/
C137		CERAMIC CHIP	270PF	5%	50V	C229	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
U130	1-104-900-11	ORIGINATE CHIL	2101F	JN	001	C230		CERAMIC CHIP	390PF	5%	50V
C120	1 169 070 11	CERAMIC CHIP	0.01uF	10%	25V	C231		TANTAL. CHIP	10uF	20%	6.3V
C139 C140		CERAMIC CHIP	18PF	5%	50V	C232		CERAMIC CHIP	0. 1uF	_ 0.4	25V
		CERAMIC CHIP	0. 0022u		50V	C232		TANTALUM CHIP	2. 2uF	20%	10V
C141		CERAMIC CHIP	270PF	5%	50V	0204	100-140-21	THURSON OHIL		10	
C142 C143		CERAMIC CHIP	18PF	5%	50V						
(143	1-104-310-11	ODIMINIO OIIII	1011	<i>5 1</i> 0	501						

				_							
Ref. No.	Part No.	Description			marks	Ref. No.		Description			Remarks
C235		CERAMIC CHIP	0.047uF	10%	16V	C431		CERAMIC CHIP	0. 022uF	10%	25V
C236		TANTAL. CHIP	1uF	20%	16V	C432		CERAMIC CHIP	0. 047uF	10%	16V
C237		CERAMIC CHIP	0.0022uF	10%	50V	C433		CERAMIC CHIP	0. 022uF	10%	25V
C238		TANTALUM CHIP	3. 3uF	20%	6.3V	C434		CERAMIC CHIP	0. 1uF		25V
C240	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C435	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C242	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C436	1-164-156-11	CERAMIC CHIP	0. 1uF		25V
C243	1-162-916-11	CERAMIC CHIP	12PF	5%	50V	C437	1-164-156-11	CERAMIC CHIP	0. 1uF		25V
C244	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C438	1-164-156 11	CERAMIC CHIP	0. 1uF		25V
C246		TANTALUM CHIP	0.33uF	10%	35V	C439	1-164-156-11	CERAMIC CHIP	0. 1uF		25V
C247		CERAMIC CHIP	100PF	5%	50V	C441		CERAMIC CHIP	0.1uF		25V
C248	1 169 092 11	CERAMIC CHIP	47PF	5%	50V	C442	1 165 112 11	CERAMIC CHIP	0.33uF		16V
C248		CERAMIC CHIP	0.01uF	10%	25V	C442 C443		CERAMIC CHIP	220PF	5%	50V
		TANTAL. CHIP	22uF		4V	1		CERAMIC CHIP	0. 1uF	370	25V
C252		CERAMIC CHIP	22ur 15PF	20% 5%	50V	C444		CERAMIC CHIP	0. Tur 0. 1uF		25V 25V
C254		CERAMIC CHIP	0.33uF	376		C445				1.00	
C256	1-100-112-11	CERAMIC CHIP	U. Sour		16V	C446	1-102-970-11	CERAMIC CHIP	0.01uF	10%	25V
C257	1-164 156-11	CERAMIC CHIP	0. 1uF		25V	C447	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C260	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C448	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C261	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C449	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C263	1-162-920-11	CERAMIC CHIP	27PF 5%	50V (TR	330E)	C450		CERAMIC CHIP	1uF	10%	16V
C265	1 162-926-11	CERAMIC CHIP	82PF 5%	50V (TR	330E)	C451	1-164 004-11	CERAMIC CHIP	0. luF	10%	25V
C266	1-162-970-11	CERAMIC CHIP	0.01uF 10%	25V (TR	330E)	C452	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C400		CERAMIC CHIP	0.01uF	10%	25V	C453		CERAMIC CHIP	0.0047uF	10%	50V
C401		CERAMIC CHIP	8PF	0.5PF	50V	C456		TANTAL. CHIP	10uF	20%	6.3V
C402		CERAMIC CHIP	0.001uF	10%	50V	C458		CERAMIC CHIP	0.1uF	10%	25V
C403		CERAMIC CHIP	7PF	0.5PF	50V	C502		CERAMIC CHIP	0.01uF		50V
C404	1_107_682_11	CERAMIC CHIP	1uF	10%	16V	C511	1_135_180_21	TANTALUM CHIP	3. 3uF	20%	6. 3V
C405		CERAMIC CHIP	2PF	0. 25PF		C512		CERAMIC CHIP	0.0047uF	10%	50V
C405		CERAMIC CHIP	0.01uF	10%	25V	C515		TANTAL. CHIP	22uF	20%	4V
C407		CERAMIC CHIP	0.0047uF	10%	50V	C518		CERAMIC CHIP	0.01uF	10%	25V
C407		CERAMIC CHIP	0.0047uF	10%	50V	C520		CERAMIC CHIP	0.01uF	10%	25V
C409		CERAMIC CHIP	0.001uF	10%	50V	C521		CERAMIC CHIP	0.01uF	10%	25V
C411		CERAMIC CHIP	0.01uF	10%	25V	C522		CERAMIC CHIP	0.0015uF	10%	50V
C412		CERAMIC CHIP	0.01uF	10%	25V	C523	1-124-778-00		22uF	20%	6.3V
C413		CERAMIC CHIP	0.001uF	10%	50V	C526		CERAMIC CHIP	0.01uF	10%	25V
C414	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C529	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C415	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C530	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C416	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C531	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C417	1-162-957-11	CERAMIC CHIP	220PF	5%	50V	C532	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C418		CERAMIC CHIP	220PF	5%	50V	C533	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C419	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C535	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C420	1_162_970_11	CERAMIC CHIP	0.01uF	10%	25V	C537	1-164-489-11	CERAMIC CHIP	0. 22uF	10%	16V
C421		CERAMIC CHIP	0.01uF	10%	25V	C542		CERAMIC CHIP	0. 47uF	10%	16V
C421		CERAMIC CHIP	0.0047uF	10%	50V	C542	1-104-908-11		47uF	20%	4V
C423		CERAMIC CHIP	0.0047uF	10%	50V	C546	1-104-308-11		100uF	20%	4 V
C425		CERAMIC CHIP	0. 1uF	10%	25V	C548		TANTAL. CHIP	22uF	20%	4V
				1.00	FAIT	0550	1 105 140 00	MANIMATURA CULTO	0.0.0	0.00"	1.07
C426		CERAMIC CHIP	0.0047uF	10%	50V	C550		TANTALUM CHIP	2. 2uF	20%	10V
C427		CERAMIC CHIP	0.0047uF	10%	50V	C556		TANTALUM CHIP	2. 2uF	20%	10V
C428		CERAMIC CHIP	0. 022uF	10%	25V	C557		CERAMIC CHIP	0.01uF	* 021	50V
C429		CERAMIC CHIP	0. 1uF		25V	C558		CERAMIC CHIP	0.47uF	10%	16V
C430	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C561	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V

Dof.	. No	Part No.	Description		Rer	narks	Ref. No.	Part No.	Description		R	emarks
_	. No.			1uF	10%	16V		1-135-091-91		1uF	20%	16V
	2571	1-107-682 11		390PF	5%	50V		1-107-823-11		0.47uF	10%	16V
		1-164-392-11		JuF	20%	16V		1-162-970-11		0. 01uF	10%	25V
		1-135-091-91			20%	6. 3V		1-162-970-11		0.01uF	10%	25V
	C574		TANTAL. CHIP	10uF	10%	50V		1-164-004-11		0. 1uF	10%	25V
(C575	1-162 964-11	CERAMIC CHIP	0.001uF	10%	201	0132	1-104-004-11	CERCAMIC CITT	o. rui	10/0	201
(C576	1-162-957-11	CERAMIC CHIP	220PF	5%	50V		1-162-964-11		0.001uF	10%	50V
(2577	1-162-957-11	CERAMIC CHIP	220PF	5%	50V		1-135-259-11		10uF	20%	6.3V
(C578		CERAMIC CHIP	1uF	10%	16V		1-162-970-11		0.01uF	10%	25V
(2602	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V		1-162-921-11		33PF 5%		R330E)
(2603	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	C739	1-162-919-11	CERAMIC CHIP	22PF 5%	50V (T	R510E)
(C604	1_162_964_11	CERAMIC CHIP	0.001uF	10%	50V	C740	1-164-315-11	CERAMIC CHIP	470PF	2%	50¥
	2605		CERAMIC CHIP	0. 1uF		25V	C741	1-135-148-21		1.5uF	20%	10V
	2606		CERAMIC CHIP	0.022uF	10%	25V	C742	1-164-156-11	CERAMIC CHIP	0.1uF		25V
	2607		CERAMIC CHIP	0. 1uF		25V	C745	1-164-156-11	CERAMIC CHIP	0.1uF		25V
	2608		CERAMIC CHIP	0. 22uF	10%	16V	C746	1-164-156-11	CERAMIC CHIP	0.1uF		25V
			appared curp	0.01.7	1.00/	257	C749	1 125 101 21	TANTALUM CHIP	4.7uF	20%	6.3V
	C609		CERAMIC CHIP	0.01uF	10%	25V 25V	C750		CERAMIC CHIP	0.01uF	10%	25V
	C610		CERAMIC CHIP	0.01uF	10%		C750		CERAMIC CHIP	luF	10%	16V
	C611		TANTALUM CHIP	4.7uF	20%	6.3V	C751		CERAMIC CHIP	1uF		16V
	C612		CERAMIC CHIP	0. 1uF	1.00/	25V	C757		TANTALUM CHIP	4.7uF	20%	6.3V
(C613	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	0757	1-130-101-21	TANTALOM CITI	4.701	20%	0.01
	C614	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C758		CERAMIC CHIP	0.01uF	10%	25V
	C615		CERAMIC CHIP	0.001uF	10%	50V	C759		CERAMIC CHIP	0.1uF		25V
	C616	1-164-156-11	CERAMIC CHIP	0. 1uF		25V	C760		TANTAL. CHIP		6.3V(
	C618	1-164-156-11	CERAMIC CHIP	0. 1uF		25V	C761		CERAMIC CHIP	0.01uF 10%		rr510E)
	C619	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V	C772	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
		1_164_156_13	CERAMIC CHIP	0. 1uF		25V			< CONNECTOR >			
	C620		CERAMIC CHIP	0. 1uF 0. 001uF	10%	25V 50V			< CONNECTOR >			
	C620 C701	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	CN060	1-691-350-21	< CONNECTOR >		2P	
	C620 C701 C702	1-162-964-11 1-164-156-11	CERAMIC CHIP	0.001uF 0.1uF		50V 25V			CONNECTOR, FF	C/FPC (ZIF) 1	2P	
	C620 C701 C702 C703	1-162-964-11 1-164-156-11 1-162-970-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF	10%	50V 25V 25V	CN101	1-766-341-21		C/FPC (ZIF) 1 C/FPC 11P		
	C620 C701 C702	1-162-964-11 1-164-156-11 1-162-970-11	CERAMIC CHIP	0.001uF 0.1uF		50V 25V	CN101 CN102	1-766-341-21 1-764-708-21 1-774-054-21	CONNECTOR, FF CONNECTOR, FF CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4	P 5P	
	C620 C701 C702 C703 C704	1-162-964-11 1-164-156-11 1-162-970-11 1-164-346-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF		50V 25V 25V	CN101 CN102	1-766-341-21 1-764-708-21 1-774-054-21	CONNECTOR, FF CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4	P 5P	
	C620 C701 C702 C703 C704	1-162-964-11 1-164-156-11 1-162-970-11 1-164-346-11 1-135-214-21	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP TANTAL. CHIP	0.001uF 0.1uF 0.01uF 1uF	10%	50V 25V 25V 16V	CN101 CN102 CN300 * CN301	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11	CONNECTOR, FF CONNECTOR, FF CONNECTOR, FF CONNECTOR, BO	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD	P 5P	
	C620 C701 C702 C703 C704 C706 C707	1-162-964-11 1-164-156-11 1-162-970-11 1-164-346-11 1-135-214-21 1-164-232-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP TANTAL. CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF	10%	50V 25V 25V 16V	CN101 CN102 CN300 * CN301	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21	CONNECTOR, FF CONNECTOR, FF CONNECTOR, FF CONNECTOR, BO CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD	P 5P	
	C620 C701 C702 C703 C704 C706 C707 C708	1-162-964-11 1-164-156-11 1-162-970-11 1-164-346-11 1-135-214-21 1-164-232-11 1-164-232-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP TANTAL. CHIP CERAMIC CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF	10%	50V 25V 25V 16V 20V 50V	CN101 CN102 CN300 * CN301 CN400 CN401	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21	CONNECTOR, FF CONNECTOR, FF CONNECTOR, FF CONNECTOR, BO CONNECTOR, FF CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P	P 5P	
	C620 C701 C702 C703 C704 C706 C707 C708 C710	1-162-964-11 1-164-156-11 1-162-970-11 1-164-346-11 1-135-214-21 1-164-232-11 1-164-232-11 1-164-156-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP TANTAL. CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF	10%	50V 25V 25V 16V 20V 50V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21	CONNECTOR, FF CONNECTOR, FF CONNECTOR, FF CONNECTOR, BO CONNECTOR, FF CONNECTOR, FF CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P	P 5P	
	C620 C701 C702 C703 C704 C706 C707 C708	1-162-964-11 1-164-156-11 1-162-970-11 1-164-346-11 1-135-214-21 1-164-232-11 1-164-232-11 1-164-156-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP TANTAL. CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF	10%	50V 25V 25V 16V 20V 50V 50V 25V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-766-644-21	CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P	P 5P 38P	
	C620 C701 C702 C703 C704 C706 C707 C708 C710	1-162-964-11 1-164-156-11 1-162-970-11 1-164-346-11 1-135-214-21 1-164-232-11 1-164-232-11 1-164-156-11 1-164-156-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP TANTAL. CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF	10%	50V 25V 25V 16V 20V 50V 50V 25V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-766-644-21	CONNECTOR, FF CONNECTOR, FF CONNECTOR, FF CONNECTOR, BO CONNECTOR, FF CONNECTOR, FF CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P	P 5P 38P	
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711	1-162-964-11 1-164-156-11 1-162-970-11 1-164-346-11 1-135-214-21 1-164-232-11 1-164-232-11 1-164-156-11 1-162-970-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP TANTAL. CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF	10%	50V 25V 25V 16V 20V 50V 50V 25V 25V 25V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-766-644-21 1-764-707-21	CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8	P 5P 38P	
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711	1-162-964-11 1-164-156-11 1-162-970-11 1-164-346-11 1-135-214-21 1-164-232-11 1-164-156-11 1-164-156-11 1-162-970-11 1-135-259-11	CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP TANTAL. CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF	10%	50V 25V 25V 16V 20V 50V 50V 25V 25V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-345-21 1-766-644-21 1-764-707-21 1-764-529-11	CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8	P 5P 38P P	
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713	1-162-964-11 1-164-156-11 1-162-970-11 1-164-346-11 1-135-214-21 1-164-232-11 1-164-156-11 1-162-970-11 1-135-259-11 1-162-970-11 1-162-970-11	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF	10% 20% 10% 20%	50V 25V 25V 16V 20V 50V 50V 25V 25V 6. 3V 6. 3V 25V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501 CN601 CN701	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-766-644-21 1-764-707-21 1-764-529-11 1-750-630-11	CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8 C/FPC (ZIF) 2 C/FPC (ZIF) 1	P 5P 38P P 2P 6P	5100)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714	1-162-964-11 1-164-156-11 1-162-970-11 1-164-346-11 1-135-214-21 1-164-232-11 1-164-156-11 1-162-970-11 1-135-259-11 1-162-970-11 1-162-970-11	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF	10% 20% 10% 20% 20%	50V 25V 25V 16V 20V 50V 50V 25V 25V 25V 6. 3V 6. 3V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501 CN601 CN701	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-766-644-21 1-764-707-21 1-764-529-11 1-750-630-11	CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8 C/FPC (ZIF) 2 C/FPC (ZIF) 1	P 5P 38P P 2P 6P	510E)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714 C715 C717	1-162-964-11 1-164-156-11 1-164-346-11 1-164-346-11 1-135-214-21 1-164-232-11 1-164-156-11 1-164-156-11 1-162-970-11 1-135-259-11 1-162-970-11 1-162-964-11	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF 0.01uF 10uF 10uF 0.01uF	10% 20% 10% 20% 10% 10%	50V 25V 25V 16V 20V 50V 50V 25V 25V 6. 3V 6. 3V 25V 50V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501 CN601 CN701	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-766-644-21 1-764-707-21 1-764-529-11 1-750-630-11	CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8 C/FPC (ZIF) 2 C/FPC (ZIF) 1	P 5P 38P P 2P 6P	510E)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714 C715 C717	1-162-964-11 1-164-156-11 1-164-346-11 1-164-346-11 1-164-232-11 1-164-232-11 1-164-156-11 1-162-970-11 1-135-259-11 1-162-970-1 1-162-964-1 1-162-919-1	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF 0.01uF 10uF 10uF 0.01uF	10% 20% 10% 20% 10% 10% 50V (T	50V 25V 25V 16V 20V 50V 25V 25V 25V 6. 3V 6. 3V 25V 50V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501 CN601 CN701	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-766-644-21 1-764-707-21 1-764-529-11 1-750-630-11	CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8 C/FPC (ZIF) 2 C/FPC (ZIF) 1	P 5P 38P P 2P 6P	510E)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714 C715 C717	1-162-964-11 1-164-156-11 1-164-346-11 1-164-346-11 1-164-232-11 1-164-232-11 1-164-156-11 1-162-970-11 1-135-259-11 1-162-970-11 1-162-964-11 1-162-919-1 1-162-921-1	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF 0.01uF 10uF 10uF 10uF 0.01uF 22PF 5% 33PF 5%	10% 20% 10% 20% 20% 10% 50V (T	50V 25V 25V 16V 20V 50V 50V 25V 25V 6. 3V 6. 3V 25V 50V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501 CN601 CN701	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-766-644-21 1-764-707-21 1-764-529-11 1-750-630-11	CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8 C/FPC (LIF) 8 C/FPC (ZIF) 1 C/FPC (ZIF) 1	P 5P 38P P 2P 6P	510E)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714 C715 C717 C718 C718 C719	1-162-964-11 1-164-156-11 1-164-346-11 1-164-346-11 1-164-232-11 1-164-232-11 1-164-156-11 1-164-156-11 1-162-970-11 1-135-259-11 1-162-970-11 1-162-964-11 1-162-919-1 1-162-921-1 1-164-489-1	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF 0.01uF 10uF 10uF 10uF 0.01uF 0.01uF 0.01uF 0.022F 5% 33PF 5% 0.22uF	10% 20% 10% 20% 10% 50V (T 50V (T	50V 25V 25V 16V 20V 50V 25V 25V 25V 6. 3V 6. 3V 25V 50V (R330E)	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501 CN601 CN701 CN702	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-764-707-21 1-764-529-11 1-750-630-11 1-691-356-21 8-719-404-49	CONNECTOR, FF	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8 C/FPC (LIF) 8 C/FPC (ZIF) 1 C/FPC (ZIF) 1	P 5P 38P P 2P 6P	510E)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714 C715 C717 C718 C718 C719 C720	1-162-964-11 1-164-156-11 1-164-346-11 1-164-346-11 1-164-232-11 1-164-232-11 1-164-156-11 1-164-156-11 1-162-970-11 1-135-259-11 1-162-970-11 1-162-964-11 1-162-919-1 1-162-921-1 1-164-489-1 1-162-923-1	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF 0.01uF 10uF 10uF 10uF 0.01uF 0.01uF 0.02uF 47PF	10% 20% 10% 20% 20% 10% 50V (T	50V 25V 25V 16V 20V 50V 25V 25V 25V 6. 3V 6. 3V 25V 50V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501 CN601 CN701 CN702	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-764-707-21 1-764-529-11 1-750-630-11 1-691-356-21	CONNECTOR, FF CO	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8 C/FPC (ZIF) 1 C/FPC (ZIF) 1	P 5P 38P P 2P 6P	510E)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714 C715 C717 C718 C718 C719	1-162-964-11 1-164-156-11 1-164-346-11 1-164-346-11 1-164-232-11 1-164-232-11 1-164-156-11 1-164-156-11 1-162-970-11 1-135-259-11 1-162-970-11 1-162-964-11 1-162-919-1 1-162-921-1 1-164-489-1 1-162-923-1	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF 0.01uF 10uF 10uF 10uF 0.01uF 0.01uF 0.01uF 0.022F 5% 33PF 5% 0.22uF	10% 20% 10% 20% 10% 50V (T 50V (T 10% 5% 10%	50V 25V 25V 16V 20V 50V 25V 25V 25V 6. 3V 6. 3V 25V 50V (R330E) (R510E) 16V 50V	CN101 CN102 CN300 * CN301 * CN400 CN401 CN402 CN403 CN501 CN601 CN701 CN702 D101 D102 D103 D201	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-764-707-21 1-764-707-21 1-764-529-11 1-750-630-11 1-691-356-21 8-719-404-49 8-719-820-41 8-719-027-56 8-719-027-56	CONNECTOR, FF CONDECTOR, FF CONNECTOR, FF CONNECTOR, FF CONDECTOR, FF CO	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8 C/FPC (ZIF) 1 C/FPC (ZIF) 1 C/FPC (ZIF) 1	P 5P 38P P 2P 6P	510E)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714 C715 C717 C718 C718 C719 C720 C722	1-162-964-11 1-164-156-11 1-164-346-11 1-164-346-11 1-164-32-11 1-164-232-11 1-164-232-11 1-164-156-11 1-162-970-11 1-135-259-11 1-162-970-1 1-162-964-11 1-162-923-1 1-162-964-1 1-162-924-1	CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF 0.01uF 10uF 10uF 10uF 0.01uF 0.01uF 0.02uF 47PF 0.001uF	10% 20% 10% 20% 10% 10% 50V (T 10% 5% 10%	50V 25V 25V 16V 20V 50V 25V 25V 6. 3V 25V 50V (R330E) R510E) 16V 50V	CN101 CN102 CN300 * CN301 * CN400 CN401 CN402 CN403 CN501 CN601 CN701 CN702	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-345-21 1-766-345-21 1-764-707-21 1-764-529-11 1-750-630-11 1-691-356-21 8-719-404-49 8-719-820-41 8-719-027-50	CONNECTOR, FF CONDECTOR, FF CONNECTOR, FF CONNECTOR, FF CONDECTOR, FF CO	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8 C/FPC (ZIF) 1 C/FPC (ZIF) 1 C/FPC (ZIF) 1	P 5P 38P P 2P 6P	510E)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714 C715 C717 C718 C718 C719 C720 C722 C724 C724	1-162-964-11 1-164-156-11 1-164-346-11 1-164-346-11 1-164-32-11 1-164-232-11 1-164-232-11 1-164-156-11 1-162-970-11 1-135-259-11 1-162-970-11 1-162-964-11 1-162-921-1 1-162-923-1 1-162-964-1 1-162-924-1 1-162-920-1	CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.01uF 10uF 10uF 0.01uF 0.01uF 0.01uF 0.01uF 0.01uF 0.001uF 0.001uF	10% 20% 10% 20% 10% 10% 50V (T 10% 5% 10% 50V (T	50V 25V 25V 16V 20V 50V 25V 25V 6. 3V 25V 50V 7R330E) 7R510E)	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501 CN601 CN701 CN702 D101 D102 D103 D201 D202	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-764-707-21 1-764-707-21 1-764-529-11 1-750-630-11 1-691-356-21 8-719-404-49 8-719-820-41 8-719-027-50 8-719-404-49	CONNECTOR, FF CONDECTOR, FF CO	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8 C/FPC (ZIF) 1 C/FPC (ZIF) 1 C/FPC (ZIF) 1	P 5P 38P P 2P 6P	510E)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714 C715 C717 C718 C718 C719 C720 C722	1-162-964-11 1-164-156-11 1-164-346-11 1-164-346-11 1-164-232-11 1-164-232-11 1-164-156-11 1-164-156-11 1-162-970-11 1-135-259-11 1-162-964-11 1-162-923-1 1-162-924-1 1-162-920-1 1-162-970-1 1-162-920-1 1-162-970-1	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF 0.01uF 10uF 10uF 10uF 0.01uF 0.001uF 22PF 5% 33PF 5% 0.22uF 47PF 0.001uF	10% 20% 10% 20% 10% 10% 50V (T 10% 50V (T 10%) 50V (T 10%)	50V 25V 25V 16V 20V 50V 25V 25V 25V 6. 3V 25V 50V 7R330E) 7R510E) 16V 50V 50V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501 CN601 CN701 CN702 D101 D102 D103 D201 D202 D203	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-764-707-21 1-764-707-21 1-764-529-11 1-750-630-11 1-691-356-21 8-719-820-41 8-719-027-50 8-719-027-50 8-719-404-49 8-719-027-48	CONNECTOR, FF CONDECTOR, FF CONNECTOR, FF CONNECTOR, FF CONDECTOR, FF CONDECTOR, FF CONDECTOR, FF CONNECTOR, FF CONNECTOR, FF CONDECTOR, FF CO	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8 C/FPC (ZIF) 1 C/FPC (ZIF) 1 C/FPC (ZIF) 1 C/FPC (ZIF) 1	P 5P 38P P 2P 6P	510E)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714 C715 C717 C718 C718 C719 C720 C722 C724 C724 C725 C726	1-162-964-11 1-164-156-11 1-164-346-11 1-164-346-11 1-164-232-11 1-164-232-11 1-164-156-11 1-164-156-11 1-162-970-11 1-162-970-1 1-162-964-1 1-162-923-1 1-162-924-1 1-162-920-1 1-162-970-1 1-162-970-1 1-162-920-1 1-162-970-1 1-162-920-1 1-162-920-1 1-162-920-1 1-162-970-1 1-135-259-1	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF 0.01uF 10uF 10uF 0.01uF 0.001uF 22PF 5% 33PF 5% 0.22uF 47PF 0.001uF 56PF 5% 27PF 5% 0.01uF	10% 20% 10% 20% 10% 10% 50V (T 10% 5% 10% 50V (T 10% 20%	50V 25V 25V 16V 20V 50V 25V 25V 25V 6. 3V 6. 3V 25V 50V (R330E) (R510E) 50V (R330E) (R330E) (R510E) 50V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501 CN601 CN701 CN702 D101 D102 D103 D201 D202 D203 D302	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-764-707-21 1-764-707-21 1-764-529-11 1-750-630-11 1-691-356-21 8-719-404-49 8-719-027-50 8-719-027-50 8-719-404-49 8-719-404-49 8-719-404-49	CONNECTOR, FF CO	C/FPC (ZIF) 1 C/FPC 11P C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC 8P C/FPC (LIF) 8 C/FPC (ZIF) 1	P 5P 38P P 2P 6P 8P (TR	510E)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714 C715 C717 C718 C718 C719 C720 C722	1-162-964-11 1-164-156-11 1-164-346-11 1-164-346-11 1-164-232-11 1-164-232-11 1-164-156-11 1-164-156-11 1-162-970-11 1-162-970-1 1-162-964-1 1-162-923-1 1-162-924-1 1-162-920-1 1-162-970-1 1-162-970-1 1-162-920-1 1-162-970-1 1-162-920-1 1-162-920-1 1-162-920-1 1-162-970-1 1-135-259-1	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF 0.01uF 10uF 10uF 10uF 0.01uF 0.001uF 22PF 5% 33PF 5% 0.22uF 47PF 0.001uF	10% 20% 10% 20% 10% 10% 50V (T 10% 50V (T 10%) 50V (T 10%)	50V 25V 25V 16V 20V 50V 25V 25V 25V 6. 3V 25V 50V 7R330E) 7R510E) 16V 50V 50V	CN101 CN102 CN300 * CN301 * CN400 CN401 CN402 CN403 CN501 CN601 CN701 CN702 D101 D102 D103 D201 D202 D203 D302 D319	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-764-707-21 1-764-707-21 1-764-529-11 1-750-630-11 1-691-356-21 8-719-404-49 8-719-027-50 8-719-027-50 8-719-404-49 8-719-404-49 8-719-404-49 8-719-404-49 8-719-033-13	CONNECTOR, FF CO	C/FPC (ZIF) 1 C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC (ZIF) 2 C/FPC (ZIF) 2 C/FPC (ZIF) 1 C	P 5P 38P P 2P 6P 8P (TR	510E)
	C620 C701 C702 C703 C704 C706 C707 C708 C710 C711 C712 C713 C714 C715 C717 C718 C718 C719 C720 C722 C724 C724 C725 C726	1-162-964-11 1-164-156-11 1-164-346-11 1-164-346-11 1-164-232-11 1-164-232-11 1-164-156-11 1-164-156-11 1-162-970-11 1-162-970-1 1-162-964-1 1-162-923-1 1-162-924-1 1-162-920-1 1-162-970-1 1-162-970-1 1-162-920-1 1-162-970-1 1-162-920-1 1-162-920-1 1-162-920-1 1-162-970-1 1-135-259-1	CERAMIC CHIP TANTAL. CHIP TANTAL. CHIP CERAMIC CHIP	0.001uF 0.1uF 0.01uF 1uF 4.7uF 0.01uF 0.01uF 0.1uF 0.1uF 0.01uF 10uF 10uF 0.01uF 0.001uF 22PF 5% 33PF 5% 0.22uF 47PF 0.001uF 56PF 5% 27PF 5% 0.01uF	10% 20% 10% 20% 10% 10% 50V (T 10% 5% 10% 50V (T 10% 20%	50V 25V 25V 16V 20V 50V 25V 25V 25V 6. 3V 6. 3V 25V 50V (R330E) (R510E) 50V (R330E) (R330E) (R510E) 50V	CN101 CN102 CN300 * CN301 CN400 CN401 CN402 CN403 CN501 CN601 CN701 CN702 D101 D102 D103 D201 D202 D203 D302	1-766-341-21 1-764-708-21 1-774-054-21 1-691-931-11 1-766-340-21 1-766-342-21 1-766-345-21 1-764-707-21 1-764-707-21 1-764-529-11 1-750-630-11 1-691-356-21 8-719-404-49 8-719-027-50 8-719-027-50 8-719-404-49 8-719-404-49 8-719-404-49	CONNECTOR, FF CONDECTOR, FF CONNECTOR, FF CONNECTOR, FF CONDECTOR, FF CONDECTOR, FF CONDECTOR, FF CONNECTOR, FF CONDECTOR, FF CO	C/FPC (ZIF) 1 C/FPC (LIF) 9 C/FPC (LIF) 9 C/FPC (ZIF) 4 ARD TO BOARD C/FPC 10P C/FPC 12P C/FPC 15P C/FPC (LIF) 8 C/FPC (ZIF) 1 C	P 5P 38P P 2P 6P 8P (TR	510E)

Ref. N	o. Part No. Description	D	D-4 V	. B . Y	D .		
D703		Remarks	Ref. No		Description	_	Remarks
D705		_TQA	L202	1-412-064-11			
D706	11000 01		L203 L207	1-412-959-11 1-412-963-11			
		1011	L210	1-412-965-11			
	< IC >		L211	1-412-058-11			
				1 112 000 11	THEORIGIN CIT	iii iouii	
	t 8-759-362-34 IC MB88344BLPF	/-ER	L212	1-412-058-11	INDUCTOR CH	IIP 10uH	
	8-752-071-48 IC CXA2002R		L213	1-414-196-41			
	8-752-071-47 IC CXA2001R		L214	1-412-056-11			
	4 8-759-234-20 IC TC7S08F 0 8-752-858-50 IC CXP87460-009	·n	L400	1-412-058-11			
10400	0 8-752-858-50 IC CXP87460-005	DK	L401	1-412-959-11	INDUCTOR 47	uH	
IC401	8-759-278-57 IC AK6420HF-E2		L570	1 414 070 11	INDUCTOR 10	**	
	8-752-070-46 IC CXA1814Q		L601	1-414-078-11 1-412-058-11			
	8-759-327-67 IC LB1950V-TLM		L602	1-412-058-11			
IC404	8-759-327-62 IC TA8482FN-EL		L603	1-412-951-11			
IC405	8-759-234-20 IC TC7S08F		L701	1-412-058-11			
						11 10011	
	8-759-338-93 IC AN3996FHP-EE		L703	1-414-078-11	INDUCTOR 10c	uH	
	8-759-334-09 IC CXA2003N-T4		L704	1-412-058-11	INDUCTOR CHI	IP 10uH	
	8-759-701-01 IC NJM2904E		L706	1-412-058-11	INDUCTOR CHI	IP 10uH	
	8-759-337-41 IC NJM2902V		L707	1-412-979-21	INDUCTOR 1uH	ł	
10003	8-759-247-07 IC MPC17A34VMEL		L708	1-412-979-21	INDUCTOR 1uH	·l	
IC604	8-752-365-65 IC CXD2126N-T4		1.500	1 110 000 04			
	8-752-372-14 IC CXD1267AN		L709	1-412-052-21			
	8-752-374-25 IC CXD2415R-T4		L710 L712	1-412-052-21			
	8-752-073-11 IC CXA2006Q-T4		L712 L714	1-414-078-11			
	8-752-375-80 IC CXD2312R		L714	1-412-058-11 1-414-078-11			
			D/10	1-414-070-11	INDUCTOR TOU	ıΠ	
	8-752-374-02 IC CXD2418R		L716	1-414-078-11	INDUCTOR 10u	H (TR510E)	
	8-759-349-58 IC CXD8562R		L751	1-414-078-11			
	8-759-297-76 IC CXD2152AREL	(TR510E)					
	8-759-337-40 IC NJM2904V				< TRANSISTOR	! >	
10709	8-759-198-34 IC TA75S558F						
IC710	8-759-198-34 IC TA75S558F		Q061			2SB798-DL	
10110	0 100 100 04 10 11(100000)		Q062	8-729-230-63		2SC4116YG	
	< COIL >		Q063 Q064	8-729-230-63		2SC4116YG	
			Q065	8-729-230-63 1 8-729-230-63 1		2SC4116YG	
L061	1-412-064-11 INDUCTOR CHIP 1000	л Н	4000	0 120-200-00	TIVE TO LUCE	2SC4116YG	
L062	1-414-078-11 INDUCTOR 10uH	1	Q101	8-729-230-63	TRANSISTOR	2SC4116YG	
L063	1-412-052-21 INDUCTOR CHIP 1uH		Q102	8-729-402-48		UN521E	
L101	1-412-066-21 INDUCTOR CHIP 220u		Q103	8-729-230-63		2SC4116YG	
L102	1-412-066-21 INDUCTOR CHIP 220u	Н	Q104	8-729-230-63 1		2SC4116YG	
7.102	1 410 000 O1 THINKSON OUTD OO		Q105	8-729-420-24	RANSISTOR	2SB1218A-QRS	
L103 L104	1-412-066-21 INDUCTOR CHIP 220u	Н					
L104 L105	1-412-952-11 INDUCTOR 12uH 1-412-060-11 INDUCTOR CHIP 22uH		Q106	8-729-905-23 1		2SA1576-R (TR510E)	
L106	1-412-957-11 INDUCTOR 33uH	1		8-729-824-02 T		2SA1838	
L107	1-412-280-31 INDUCTOR 330uH			8-729-402-42 T		UN5213	
2201	1 112 200 01 1100CTOR 550U1			8-729-402-42 T		UN5213	
L108	1-412-282-41 INDUCTOR 470uH		Q110	8-729-012-50 T	KANS1510R	2SC4400-3/4/5	
L109	1-412-355-41 INDUCTOR 180uH		Q111	8-729-230-63 T	PANSISTOR	2SC4116YG	
L113	1-414-078-11 INDUCTOR 10uH			8-729-230-63 T		2SC41161G 2SC4116YG	
L114	1-412-355-41 INDUCTOR 180uH			8-729-230-63 T		2SC41161G	
L115	1-412-957-11 INDUCTOR 33uH			8-729-402-42 T		UN5213	
				8-729-403-35 T		UN5113	
L116	1-414-078-11 INDUCTOR 10uH					-	
L118	1-414-373-61 INDUCTOR CHIP 10uH						
L119	1-412-950-11 INDUCTOR 8. 2uH	,					
L120 L121	1-410-658-31 INDUCTOR CHIP 220ul						
D161	1-410-655-31 INDUCTOR CHIP 120ul	1					
		= 40					

R	ef. No.	Part No.	Description		Remarks	Ref. No.	Part No.	Description			Remarks
_	Q123	8-729-015-74	TRANSISTOR	UN5111		R084	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
	Q124	8-729-117-73		2SC4178-F14	ļ	R085	1-216-826-11		2.7K		1/16W
	Q125	8-729-230-63		2SC4176-114 2SC4116YG		R086	1-216-834-11				
	Q126	8 729-402-42		UN5213					12K	5%	1/16W
							1-216-832-11		8.2K		1/16W
	Q129	8-729-420-24	IKANS1510K	2SB1218A-QRS		R088	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
	Q130	8-729-012-50		2SC4400-3/4/5		R091	1-216-841-11	METAL CHIP	47K		1/16W
	Q131	8-729-420-24	TRANSISTOR	2SB1218A-QRS		R092	1-216-841-11	METAL CHIP	47K	5%	1/16W
	Q202	8-729-230-63	TRANSISTOR	2SC4116YG		R101	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
	Q206	8-729-420-24	TRANSISTOR	2SB1218A-QRS		R102	1-216-815-11	METAL CHIP	330	5%	1/16W
	Q212	8-729-420-24	TRANSISTOR	2SB1218A-QRS		R103	1-216-815-11	METAL CHIP	330	5%	1/16W
	Q213	8-729-402-42	TRANSISTOR	UN5213		R104	1-216-797-11	METAL CHIP	10	5%	1/16W
	Q214	8-729-420-24	TRANSISTOR	2SB1218A-QRS			1-216-821-11		1 K		1/16W
	Q215	8-729-013-15		2SC4909			1-218-875-11		15K	0.50%	
	Q216	8-729 420-20		XN4312			1-216-836-11		18K		1/16W
	Q217	8-729-420-12		XN4213			1-216-864-11		0		1/16W
	Q= 1 /		1144.010101			11100	1 210 001 11	MD171D CITT	Ü	O N	1/ 1011
	Q218	8-729-420-24	TRANSISTOR	2SB1218A-QRS		R109	1 -216 - 829 - 11	METAL CHIP	4.7K	5%	1/16W
	Q219	8-729-230-63	TRANSISTOR	2SC4116YG		R110	1-216-836-11	METAL CHIP	18K	5%	1/16W
	Q221	8-729-402-42	TRANSISTOR	UN5213	f	R111	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
	Q222	8-729-402-42	TRANSISTOR	UN5213		R112	1-216-837-11	METAL CHIP	22K	5%	1/16W
	Q223	8-729-230-63	TRANSISTOR	2SC4116YG (TR33	0E)	R113	1-216-837-11	METAL CHIP	22K	5%	1/16W
	Q224	8-729-420-24	TRANSISTOR	2SB1218A-QRS (T	R330E)	R114	1-216-833-11	METAL CHIP	10K	5%	1/16W
		8-729-230-63		2SC4116YG			1-216-864-11		0		1/16W
		8-729-015-76		UN5211			1-216-853-11		470K		1/16W
		8-729-230-63		2SC4116YG			1-216-847-11		150K		1/16W
		8-729-230-63		2SC4116YG			1-216-829-11		4.7K		1/16W
	Q I O I	0 120 200 00	TIGE COLOTOR	200111010		KIIO	1 210 023 11	morrio onn	7.111	070	1/ 10#
	Q501	8-729-420-53	TRANSISTOR	UN5115		R119	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
	Q507	8-729-421-26	TRANSISTOR	UN5216QRS		R120	1-216-839-11	METAL CHIP	33K	5%	1/16W
	Q570	8-729-402-42	TRANSISTOR	UN5213		R121	1-216-836-11	METAL CHIP	18K	5%	1/16W
	Q601	8-729-230-63	TRANSISTOR	2SC4116YG		R122	1-216-818-11	METAL CHIP	560	5%	1/16W
	Q602	8-729-230-63	TRANSISTOR	2SC4116YG		R123	1-216-815-11	METAL CHIP	330	5%	1/16W
	Q603	8-729-420-53	TRANSISTOR	UN5115		R125	1-216-821-11	METAL CHIP	1K	5%	1/16W
	Q701	8-729-403-27		XN4401			1-216-797-11		10		1/16W
		8-729-402-42		UN5213			1-216-837-11		22K		1/16W
		8-729-403-35		UN5113			1-216-837-11		22K		1/16W
		8-729-403-35		UN5113			1-216-819-11		680		1/16W
	0000	0.700.400.40	TO ANO TOTAL	INFOIO		D100	1 016 005 11	MDWAI CHIT	1.517	F 0/	1 /1 (1)
	•	8-729-402-42		UN5213	İ		1-216-835-11		15K		1/16W
		8-729-420-24		2SB1218A-QRS			1-216-839-11		33K		1/16W
	Q752	8-729-420-24	TRANSISTOR	2SB1218A-QRS			1-216-813-11		220		1/16W
							1-216-818-11		560		1/16W
			< RESISTOR >			R134	1-216-821-11	METAL CHIP	1K	5%	1/16W
		1-216-864-11			1/16W		1-216-864-11		0		1/16W
	R061	1 216-864-11	METAL CHIP	0 5%	1/16W	R136	1-216-864-11	METAL CHIP	0	5%	1/16W
	R062	1-216-864-11	METAL CHIP	0 5%	1/16W	R141	1-216-816-11	METAL CHIP	390	5%	1/16W
	R077	1-216-138-00	METAL CHIP	3.3 5%	1/8W	R149	1-216-821-11	METAL CHIP	1K	5%	1/16W
	R078	1-216-830 11	METAL CHIP	5.6K 5%	1/16W	R150	1-216-826 11	METAL CHIP	2.7K	5%	1/16W
	R079	1-216-820-11	METAL CHIP	820 5%	1/16W	R152	1-216-834-11	METAL CHIP	12K	5%	1/16W
		1-216-836-11			1/16W		1-216-833-11		10K		1/16W
		1-216-818-11			1/16W		1-216-817-11		470		1/16W
		1-216-822-11			1/16W		1-216-807-11		68		1/16W
		1-216-837-11			1/16W		1-216-827-11		3.3K		1/16W

Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description			Remarks
R157	1-216-816-11	METAL CHIP	390	5%	1/16W	R213	1-216-841-11	METAL CHIP	47K	5%	1/16W
	1-216-819-11		680	5%	1/16W	R214	1-216-807-11		68	5%	1/16W
	1-216-830-11		5.6K		1/16W	R215	1-216-821-11		1K	5%	1/16W
R160	1-216-821-11		1K	5%	1/16W	R216	1-216-821-11		1K	5%	1/16W
R161	1-216-864-11		0	5%	1/16W	R218	1-218-879-11		22K		1/16W
101	1-210-004-11	METAL CITT	U	JN	1/10#	N210	1-210-079-11	METAL CITT	ZZI	0.30%	1/10#
R162	1-216 835-11	METAL CHIP	15K	5%	1/16W	R219	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
	1-216-840-11		39K	5%	1/16W	R220	1-216-833-11		10K	5%	1/16W
	1-216-864-11		0	5%	1/16W	R221	1-216-833-11		10K	5%	1/16W
						l					
	1-216 845 11		100K		1/16W	R222	1-216-821-11		1K	5% =~	1/16W
R166	1-216-836-11	METAL CHIP	18K	5%	1/16W	R223	1-216-821-11	METAL CHIP	1K	5%	1/16W
R167	1-216-836-11	METAL CHIP	18K	5%	1/16W	R224	1-216-864-11	METAL CHIP	0	5%	1/16W
	1-216-821 11		1K	5%	1/16W	R225	1-216-833-11		10K	5%	1/16W
	1-216-804-11		39	5%	1/16W	R227	1-216-821-11		1K	5%	1/16W
	1-216-827-11		3. 3K		1/16W	R228	1-216-822-11		1.2K		1/16W
	1-216-840-11		3. 5K	5%	1/16W	R229	1-218-863-11			0.50%	
KITI	1-210-040-11	METAL CHII	3311	J /0	17 10#	1 11223	1-216-603-11	METAL CITT	4. /11	0.50%	1/10#
R172	1-216-835-11	METAL CHIP	15K	5%	1/16W	R230	1-216-821-11	METAL CHIP	1K	5%	1/16W
	1-216-864-11		0	5%	1/16W	R232	1-216-821-11		1 K	5%	1/16W
	1-216-824-11		1.8K		1/16W	R234	1 218 849 11			0.50%	
	1-216-821-11		1K	5%	1/16W	R235	1-216-821-11		1K	5%	1/16W
	1-216-821-11		1K	5%	1/16W	R236	1-216-864-11		0	5%	1/16W
KIIO	1-210-021-11	METAL CHIF	IV	J 10	1/10#	N230	1-210-604-11	METAL CHII	U	3/0	1/10#
R179	1 -216 817 11	METAL CHIP	470	5%	1/16W	R238	1-216-864-11	METAL CHIP	0	5%	1/16W
	1-216-818-11		560	5%	1/16W	R239	1-216-864-11	METAL CHIP	0	5%	1/16W
	1-216-818-11		560	5%	1/16W	R241	1-218-839-11		470		1/16W
	1-216-809-11		100	5%	1/16W	R243	1-216-829-11		4.7K	5%	1/16W
R183	1-216-818-11		560	5%	1/16W	R247	1-216-833-11		10K	5%	1/16W
KIOO	1-210-010-11	METAL CHIII	300	ON	1/10#	10241	1 210 000 11	METRIC CITT	1011	O Al	1/10#
R184	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R248	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R185	1 216 818-11	METAL CHIP	560	5%	1/16W	R249	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R186	1-216-818-11		560	5%	1/16W	R254	1-216-841-11	METAL CHIP	47K	5%	1/16W
R187	1-216-823-11		1.5K		1/16W	R255	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R188	1-216-837-11		22K	5%	1/16W	R256	1-216-833-11		10K	5%	1/16W
***************************************					-,						-,
R189	1-216-837-11	METAL CHIP	22K	5%	1/16W	R257	1-216-821-11	METAL CHIP	1K	5%	1/16W
R190	1-216-837-11	METAL CHIP	22K	5%	1/16W	R259	1-216-833-11	METAL CHIP	10K	5%	1/16W
	1-216-839-11		33K	5%	1/16W	R260	1-216-817-11	METAL CHIP	470	5%	1/16W
R192	1 216-814-11	METAL CHIP	270	5%	1/16W	R261	1-216-841-11	METAL CHIP	47K	5%	1/16W
R193	1-216-813-11	METAL CHIP	220	5%	1/16W	R262	1-216-837-11	METAL CHIP	22K	5%	1/16W
R194	1-216-806-11	METAL GLAZE	56	5%	1/16W	R265	1-216-821-11	METAL CHIP	1 K	5% 1,	/16W(TR330E)
R195	1-216-809-11	METAL CHIP	100	5%	1/16W	R266	1-216-864-11	METAL CHIP	0	5%	1/16W
	1-216-818-11	METAL CHIP	560	5%	1/16W	R267	1-216-864-11	METAL CHIP	0	5%	1/16W
	1-216-864-11		0	5%	1/16W	R268	1-216-818-11		560	5% 1,	/16W(TR330E)
	1-216-833-11		10K	5%	1/16W	R270	1-216-817-11		470	5%	1/16W
R202	1-216-836-11	METAL CHIP	18K		1/16W(TR330E)	R271	1-216-825-11		2.2K		1/16W
R202	1-216-864-11	METAL CHIP	0	5%	1/16W(TR510E)	R272	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R203	1-216-832-11	METAL CHIP	8.2K	5%	1/16W(TR330E)	R273	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R204	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R274	1-216-821-11	METAL CHIP	1K	5%	1/16W
R205	1-216-864-11	METAL CHIP	0	5%	1/16W	R276	1-216-864-11	METAL CHIP	0	5%	1/16W
P = 2 =		Afryman Ores			1 /1 077	2055		MODAL CALL	000	.	1 /1 /1"
	1-216-864-11		0	5%	1/16W	R277	1-216-819-11		680	5%	1/16W
	1-216-864-11		0		1/16W(TR330E)	R279	1-216-823-11				/16W(TR330E)
	1-216-836-11		18K		1/16W(TR510E)	R281	1-216-823-11		1.5K		1/16W
	1-216-828-11				1/16W(TR510E)	R282	1-216-823-11				/16W(TR510E)
R212	1-216-841-11	METAL CHIP	47K	5%	1/16W	R283	1-216-819-11	METAL CHIP	680	5% 1/	/16W(TR330E)

Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description			Remarks
	1-216-819-11		680	5% 1/	16W (TR330E)	R425	1-216-833-11	METAL CHIP	10K	5%	1/16W
R284	1-216-819-11				16W (TR330E)	R426	1-216-833-11		10K	5%	1/16W
R286			0		16W (TR330E)	R427	1-216-849-11		220K	5%	1/16W
R287	1-216-864-11		33K		16W (TR330E)	R428	1-216-841-11		47K	5%	1/16W
R289	1-216-839-11				1/16W	R429	1-216-800-11		18	5%	1/16W
R290	1 216-864-11	METAL CHIP	0	5%	1\10M	K429	1-210-000-11	METAL GLAZE	10	J N	1/10#
R291	1-216-864-11	METAL CHIP	0	5%	1/16W	R430	1-216-821-11	METAL CHIP	1K	5%	1/16W
R301	1-216-833-11		10K	5%	1/16W	R434	1-216-835-11	METAL CHIP	15K	5%	1/16W
R302	1-216-833-11		10K	5%	1/16W	R436	1-216-845-11	METAL CHIP	100K	5%	1/16W
R303	1-216-841-11		47K	5%	1/16W	R437	1-216-841-11	METAL CHIP	47K	5%	1/16W
R304	1-216-841-11		47K		1/16W	R439	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
		LADOLL GUID	4.577	-v	1 /1 CW	D440	1-216-825-11	METAL CUID	2.2K	54	1/16W
R305	1-216-841-11		47K		1/16W	R440			22K	5%	1/16W
R307	1-216-833-11		10K		1/16W	R441	1-216-837-11		100K		1/16W
R314	1-216-827-11		3.3K		1/16W	R442	1-216-845-11		22K	5%	1/16W
R315	1-218-290-11		6.2K		1/16W	R444	1-216-837-11				
R316	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R445	1-216-864-11	METAL CHIP	0	5%	1/16W
R317	1-218-290-11	METAL GLAZE	6.2K	5%	1/16W	R446	1-216-836-11	METAL CHIP	18K	5%	1/16W
R318	1-216-836-11		18K	5%	1/16W	R447	1-216-833-11	METAL CHIP	10K	5%	1/16W
R319	1-216-853-11		470K		1/16W	R448	1-216-833-11	METAL CHIP	10K	5%	1/16W
R320	1-216-853-11		470K		1/16W	R449	1-216-833-11	METAL CHIP	10K	5%	1/16W
R321	1-216-853-11		470K		1/16W	R450	1-216-833-11		10K	5%	1/16W
N321	1-210-000-11	MIDITED CITT	1.011	0.0	2, 20						
R327	1-216-853-11	METAL CHIP	470K	5%	1/16W	R451	1-216-845-11	METAL CHIP	100K	5%	1/16W
R328	1-216-853-11		470K	5%	1/16W	R452	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R329	1-216-833-11		10K	5%	1/16W	R453	1-217-671-11	METAL CHIP	1	5%	1/10W
R330	1-216-833-11		10K	5%	1/16W	R454	1-217-671-11	METAL CHIP	1	5%	1/10W
ROOU	1 210 000					R455	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R333	1-216-864-11		0	5%	1/16W						
R334	1-208-766-11	METAL GLAZE	220	0.50%	1/10W	R456	1-216-841-11		47K	5%	1/16W
R400	1-216-845-11	METAL CHIP	100K	5%	1/16W	R458	1-217-671-11		1	5%	1/10W
R401	1-216-845-11	METAL CHIP	100K	5%	1/16W	R459	1-217-671-11		1	5%	1/10W
R402	1-216-845-11	METAL CHIP	100K	5%	1/16W	R460	1-217-671-11		1	5%	1/10W
						R461	1-216-845-11	METAL CHIP	100K	5%	1/16W
R403	1-216-845-11		100K		1/16W	D.4.00	1 010 000 11	METAL CHID	1.07	ΕOV	1/16W
R404	1-216-845-11		100K	5%	1/16W	R462	1-216-833-11		10K	5% 5%	-,
R405	1-216-845-11		100K		1/16W	R463	1-216-833-11		10K	5% 5%	1/16W
R406	1-216-833-11		10K	5%	1/16W	R464	1-216-833-11		10K	5% =~	1/16W
R407	1-216-841-11	METAL CHIP	47K	5%	1/16W	R465	1-216-808-11		82	5%	1/16W
D.100	1 010 001 11	METAL CILLD	117	E0/	1/16W	R466	1 216-845-11	METAL CHIP	100K	3%	1/16W
R408	1-216-821-11		1K	5% =w		R467	1 216 010 00	METAL CHIP	56	5%	1/10W
R409	1-216-821-11		1K	5%	1/16W 1/16W	R468	1-216-833-1		10K	5%	1/16W
R410		METAL CHIP	1K	5% 5%		1		METAL CHIP	10K	5%	1/16W
R411		METAL CHIP	0 1V	5% =~	1/16W	R469 R471		1 METAL CHIP	1 K	5%	1/16W
R412	1-216-821-1	METAL CHIP	1K	5%	1/16W	1		1 METAL CHIP	10K	5%	1/16W
D410	1 016 091 1	METAL CHIP	1K	5%	1/16W	R472	1-210-055-1	I METAL CITI	1011	070	1, 10"
R413					1/16W	R473	1_216_833_1	1 METAL CHIP	10K	5%	1/16W
R414	1-216-821-1		1K 1K	5% 5%	1/16W	R474		1 METAL CHIP	1K	5%	1/16W
R417		METAL CHIP			1/16W	R474		1 METAL CHIP	2.2K		1/16W
R418		1 METAL CHIP	4.7K			R475		1 METAL CHIP	100K		1/16W
R419	1-216-845-1	1 METAL CHIP	100K	5%	1/16W	R477		1 METAL CHIP	47K	5%	1/16W
R420	1 216-833-1	1 METAL CHIP	10K	5%	1/16W						
R421		1 METAL CHIP	1K	5%	1/16W	R478		1 METAL CHIP	1K	5%	1/16W
R422		1 METAL CHIP	100K	5%	1/16W	R479		1 METAL CHIP	470	5%	1/16W
R422		1 METAL CHIP	100K		1/16W	R481		1 METAL CHIP	470	5%	1/16W
R423		1 METAL CHIP	1K	5%	1/16W	R482		1 METAL CHIP	470	5%	1/16W
N-16-T	1 210 021 1					R501		1 METAL CHIP	5.6K	5%	1/16W
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Ref No.	Part No.	Description			Remarks 1	Ref. No.	Part No.	Description			Remarks
R503	1-218-895-11		100%	0.50%		R713	1-216-833-11	-	10K	5%	1/16W
R506	1-218-903-11			0.50%	1	R713	1-216-857-11		1M	5%	1/16W
R511	1-218 881-11		27K	0.50%		R715	1-216-845-11			5%	1/16W
R512	1-216-864-11		0	5%	1/16W	R717	1-216-829-11		4.7K		1/16W
R512	1-216-837-11		22K		1/16W	R719	1-216-818-11		560	5%	1/16W
1014	1-210-007-11	METAL CITI	22K	JN	1/10#	KIIJ	1-210-010-11	METAL OILI	500	U NI	1/ 101
R515	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R720	1-216-818-11	METAL CHIP	560	5%	1/16W
R517	1-216-857-11	METAL CHIP	1M	5%	1/16W	R721	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R519	1-216-833-11		10K	5%	1/16W	R722	1-216-827-11	METAL CHIP		5%	1/16W
R522	1-216-817-11		470		1/16W	R723	1-216-818-11		560	5%	1/16W
R523	1-216-833-11		10K	5%	1/16W	R724	1-216-818-11		560	5%	1/16W
R531	1-216-817-11		470	5%	1/16W	R725	1-216-864-11		0	5%	1/16W
R556	1-216-853-11		470K		1/16W	R726	1-216-846-11		120K		1/16W
R570	1-216-827-11		3.3K		1/16W	R727	1-216-839-11		33K	5%	1/16W
R571	1-218-871-11			0.50%	1	R728	1-216-853-11		470K		1/16W
R575	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R729	1-216-864-11	METAL CHIP	0	5%	1/16W
R581	1-216-833-11	METAL CHIP	10K	5%	1/16W	R730	1-216-864-11	METAL CHIP	0	5%	1/16W
R601	1-216-001-00		10	5%	1/10W	R732	1-216-841-11		47K	5%	1/16W
R603	1-216-825-11		2.2K		1/16W	R732	1-216-841-11		47K	5%	1/16W
					1	R734	1-216-841-11		47K	5%	
R604	1-216-845-11		100K		1/16W	R734 R735			47K	5%	1/16W
R605	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	K/35	1-216-841-11	METAL CHIP	41K	ο%	1/16W
R606	1-216-836-11	METAL CHIP	18K	5%	1/16W	R737	1-216-864-11	METAL CHIP	0	5%	1/16W(TR510E)
R607	1-216-848-11	METAL CHIP	180K	5%	1/16W	R740	1-216-839-11		33K	5%	1/16W
R608	1-216-848-11	METAL CHIP	180K	5%	1/16W	R741	1-216-841-11		47K	5%	1/16W
R609	1-216-848-11		180K		1/16W	R742	1-216-837-11		22K	5%	1/16W
R610	1-216-830-11		5.6K		1/16W	R743	1-216-839-11		33K	5%	1/16W
R611	1-216-815-11		330	5%	1/16W	R744	1-216-841-11		47K	5%	1/16W
R612	1-216-845-11		100K	5%	1/16W	R745	1-216-837-11		22K	5%	1/16W
R613	1-216-834-11	METAL CHIP	12K	5%	1/16W	R751	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R614	1-216-834-11		12K	5%	1/16W	R756	1-216-864-11		0	5%	1/16W
R615	1-216-845-11	METAL CHIP	100K	5%	1/16W	R757	1-216-864-11	METAL CHIP	0	5%	1/16W
R616	1-216-837-11	METAL CHIP	22K	5%	1/16W	R758	1-216-833-11	METAL CHIP	10K	5%	1/16W
	1-216-837-11		22K	5%	1/16W	R759	1-216-836-11		18K	5%	1/16W
	1-216-837-11		22K	5%	1/16W	R775	1-216-829-11		4.7K		1/16W
R619	1-216-823-11					KIIS	1-210-625-11	METAL CITI	4. /K	<i>31</i> 0	1/10#
R620	1-216-833-11		1.5K		1/16W			< SWITCH >			
R621	1-210-033-11	METAL CHIF	10K	5%	1/16W			< SWITCH >			
R623	1-216-864-11	METAL CHIP	0	5%	1/16W	S301	1-692-088-41	SWITCH, TACTILE	(EDIT	SEAF	RCH +)
R628	1-216-821-11		1K	5%	1/16W	S302		SWITCH, TACTILE			
R629	1-216-821-11	METAL CHIP	1K	5%	1/16W	S303		SWITCH, TACTILE			
R630	1-216-841-11	METAL CHIP	47K	5%	1/16W	S304		SWITCH, TACTILE			
R631	1-216-841-11		47K	5%	1/16W	S305		SWITCH, TACTILE			
							4 00	amanar =:	(==:		
R632	1-216-848-11		180K		1/16W	S306		SWITCH, TACTILE			
R701	1-216-845-11		100K		1/16W	S307	1-692-088-41	SWITCH, TACTILE	(STOP))	
R702	1-216-845-11		100K		1/16W						
R703	1-216-857-11		1M	5%	1/16W			< VIBRATOR >			
R704	1-216-845-11	METAL CHIP	100K	5%	1/16W	V 100	1 700 015 11	WIDDATOD ODVOOR	.7 11 /	71.014	ī
D706	1_916 990 11	METAL CUID	33K	5.0¢	1/16W	X400 X701		VIBRATOR, CRYSTA VIBRATOR, CRYSTA			
R706	1-216-839-11		33K		1/16W						1Z
R707	1-216-845-11		100K		1/16W	X702	1 918 190 71	VIBRATOR, CRYSTA	L 11.	/ MITIZ	
R708	1-216-864-11		0 1 k		1/16W						
R709 R710	1-218-847-11		1K 16K	0.50%							
		MICHAEL LATER	1 2 3 17	11 311%	2 / 1 T 1 WE						

16K 0.50% 1/16W

R710 1-218 876-11 METAL CHIP

Ref. No.	Part No.	Description			Rem	arks	Ref. No.	Part No.	Description			Remarks
	A-7072-357-A	VF-87P BOARD,	COMPLETE				R913	1-216-820-11	METAL CHIP	820	5%	1/16W
		*******					R914	1-216-813-11	METAL CHIP	220	5%	1/16W
			(Ref	. No. 2, 00	00 Se1	ries)	R915	1-216-793-11	METAL GLAZE	4.7	5%	1/16W
			(410				R916	1-218-881-11		27K	0.50%	1/16W
		< CAPACITOR >					R917	1-218-893-11		82K	0.50%	1/16W
C901	1-131-388-00	TANTALIM	68uF	10)%	6.3V	R918	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
C902	1-163-038-91		0. 1uF			25V	R919	1-216-839-11		33K	5%	1/16W
C903	1-135-091-91		1uF	20)%	16V	R920	1-216-837-11		22K	5%	1/16W
C904	1-162-965-11		0.0015	ouF 10)%	50V	R921	1-216-795-11	METAL GLAZE	6.8	5%	1/16W
C905	1-104-752-11		3 3uF		0%	6.3V	R922	1-216-847-11	METAL CHIP	150K	5%	1/16W
C906	1-162-638-11	CERAMIC CHIP	1uF			16V	R923	1-216-857-11	METAL CHIP	1M	5%	1/16W
C907	1-137-306-11		0. 1uF	59	6	16V	R924	1-216-862-11		2.7M	5%	1/16W
C908	1-162-920-11		27PF	59		50V	R925	1-216-862-11		2.7M	5%	1/16W
∆ C910	1-164-758-11		0.0039			50V	R926	1-216-821-11		1K	5%	1/16W
∆ C911		CERAMIC CHIP	0.0068		%	50V	R927	1-216-821-11		1K	5%	1/16W
CO12	1-107-854-11	тамтая ситр	68uF	21	0%	6.3V	R928	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
C912	1-107-834-11		2. 2uF		0%	35V	R929	1-216-818-11		560	5%	1/16W
C914	1-128-007-11		0. 022t		0% 0%	25V	R930	1-216-815-11		330	5%	1/16W
C915	1-163-037-11		0.0220		0%	500V	R931	1-216-810-11		120	5%	1/16W
C916 C917	1-164-611-11		0.0010 0.1uF	יו זו,	U An	500V	K951	1-210-010-11	METAL CITT	120	3/0	1/ 10#
		COMMECTOD							< VARIABLE RESI	STOR >	•	
		< CONNECTOR >					RV904	1-238-862-11	RES, ADJ, CERME	T 1M		
	1-566-537-11 1-573-290-21				4P				< TRANSFORMER >			
		< DIODE >					1 ∆ T901	1-453-124-11	TRANSFORMER ASS	SY, FLY	YBACK	
D901 D903	8-719-951-21 8-719-404-49								< THERMISTOR >			
D303	0-113-404-43						TH901	1-809-350-21	THERMISTOR, NTC	(2125	5)	
		< IC >							< FLAT CABLE >			
IC901	8-759-196-14	IC BA7149F	-E2				W901	1-540-019-21	SOCKET ASSY, CR	T		
		< COIL >										
L901	1-412-031-11	INDUCTOR CHIE	47uH						MISCELLANEOUS			
L902		INDUCTOR CHIE							*****			
 ∆L903	1-402-680-21	COIL, FERRITI	t (HCL)				61	1-542-259-11	MICROPHONE, CAF)		
		< TRANSISTOR	_				66		CABLE, FLEXIBLE		8P	
		< Humororon					103		CABLE, FLEXIBLE			
Q902	8729-106-68	TRANSISTOR	2SD1615-	A-GP			120	1-775-519-11	CABLE, FLEXIBLE	FLAT	4P	
Q 903	8-729-216-31		2SA1163G				159		CRT ASSY (MO1K)			
Q904	8-729-120-28		2SC1623-				7.5.					
4000							203		CABLE, FLEXIBLE			
		< RESISTOR >					207	1-775-516-11	CABLE, FLEXIBLE	E FLAT	16P	
							209		LENS, ZOOM (VCI			
R901	1-216-817-11	METAL CHIP	470	5% 1	/16W		209		LENS, ZOOM (VCI			
R902	1-216-817-11		470		/16W		211	1-547-558-21	FILTER BLOCK, (OPTICAL	L (TR33	30E)
R903	1-216-057-00		2.2K		/10W							
R906	1-216-813-11		220		/16W		211	1-547-735-51	FILTER BLOCK, (OPTICAL	L (TR51	10E)
R907	1-216-845-11		100K		/16W		218	1-775 -833-11	CABLE, FLEXIBLE	E FLAT	18P (7	TR510E)
1001	1 210 010 11			_	**		760	1-658-213-11	FP-355 FLEXIBLE	E BOARI	D	
R908	1-216-852-11	METAL CHIP	390K	5% 1	/16W		762		FP-221 FLEXIBLE			
R909	1-216-833-11		10K		/16W		803		FP -248 FLEXIBLE			
R910	1-216-835-11		15K		/16W							
R911	1-216-160-00		27		/8W			Note: The co	omponents identifi	ed bv	mark /	↑ or dotted
R912	1-216-857-11		1M		/16W			line wit	h mark \land are crit	ical for	safety.	
							1	Replac	e only with part n	umber	specifie	ed.

line with mark \triangle are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks	Ref
817	1-657-784-11	FP-220 FLEXIBLE BOARD		
D001	8-719-988-42	DIODE GL453		
M901	A-7048-806-A	DRUM BLOCK ASSY (DGH-OC2A-R)		
M902	8-835-531-01	MOTOR, DC SCE-0601A (CAPSTAN)		
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)		
S901	1-762-436-11	SWITCH, ROTARY (ENCODER)		
	ACCESSORIES	S & PACKING MATERIALS		
	******	******		
\triangle	A-7003-840-A	AC-V15 AC POWER ADAPTOR		
		(TR330E:E, Australian, TR510	E:AEP,UK)	
\triangle		AC-V15 AC POWER ADAPTOR (TR330	E:UK)	
Λ	A-7003-843-A	AC-V15 AC POWER ADAPTOR		
		• • • • • • • • • • • • • • • • • • • •	:Tourist)	
Λ	A-7003-969 -A	AC-V15 AC POWER ADAPTOR	>	*
		(TR330E:H		*
	A-7092-608-A	CASE (N) ASSY, BATTERY (TR510E)	*
	1-473-342-11	REMOTE COMMANDER (RMT-713) (TR5	10E)	
Λ	1-569-008-11	ADAPTER, CONVERSION 2P		
		(TR330E:E, Hong Kong		*
		CORD, CONNECTION (AV CABLE) 1.5	m	
Λ		ADAPTOR, CONVERSION (TR510E)		
	2 000 472 11	MANUAL INCODUCTION (ENGLICH (CD	ARITOTIA	

3-800-473-11 MANUAL, INSTRUCTION (ENGLISH/SPANISH)

3-800-473-41 MANUAL, INSTRUCTION (GERMAN/ITALIAN)

3-800-473-51 MANUAL, INSTRUCTION (FRENCH/DUTCH)

(TR510E:AEP/UK-2)

(TR510E:AEP/UK-1, 3)

Ref. 1	No. Part No.	Description Remarks
		(TR510E:AEP/UK-3)
	2 200 472 61	MANUAL, INSTRUCTION (SWEDISH/PORTUGUESE)
	3-000-473-01	(TR510E:AEP/UK-2)
	2 900 472 71	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN)
	3 000-413-11	(TR510E:AEP/UK-1)
	2 900 474 11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN)
	3-000-474-11	
	0.000.474.41	(TR330E:E, Hong Kong, Australian, Tourist)
	3-800-474-41	MANUAL, INSTRUCTION (FRENCH/GERMAN)
	0 000 474 51	(TR330E:E, Hong Kong, Tourist)
	3-800-474-51	MANUAL, INSTRUCTION (ARABIC/PORTUGUESE)
	0 000 454 61	(TR330E:E)
	3-800-474-61	MANUAL, INSTRUCTION (CHINESE)
	0.000 181 81	(TR330E:E, Hong Kong, Tourist)
	3-800-474-71	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN)
	0.000.044.44	(TR330E:UK)
		INSTRUCTION (UK)
		BELT (S), SHOULDER
*		INDIVIDUAL CARTON (TR510E)
*		CUSHION, PULP
*	3-966-748-11	INDIVIDUAL CARTON
		(TR330E:UK, E, Hong Kong)
	3-966-748-12	INDIVIDUAL CARTON (TR330E:Tourist)
*	3-966-748-21	INDIVIDUAL CARTON (TR330E:Australian)
	**NP-33	BATTERY PACK
	NOTE	

NOTE.

**MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

SECTION 6 ADJUSTMENT

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 6-28.

6-1. CAMERA SECTION ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT

1-1-1. List of service tools

		ated power supply	Vectorscope	Pattern generator
		monitor	Digital voltmeter	
Ref.No.	Name	Parts Code	Usage	
J-1	Filter for color temperature correctio	n (C14) J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check	
J-2	ND filter 1.0	J-6080-808-A	White balance check	A VOICE
	ND filter 0.3	J-6080-818-A	White balance check	
J-3	Pattern box PTB-450	J-6082-200-A		
J-4	Color chart for pattern box	J-6020-250-A		
J-5	Siemens star	J-6080-875-A	For checking the flange back	
J-6	Adjustment remote commander(RM-95 upgrad	ded) Note J-6082-053-B		
J-7	Multi CPC	J-6082-311-A	For video section adjustment (VC-167P b	oard CN002)

Note: If the microprocessor IC in the adjusting remote commander is not the new microprocessor (UPD7503G-C56-12), the pages cannot be switched.

In this case, replace with the new microprocessor (8-759-148-35).

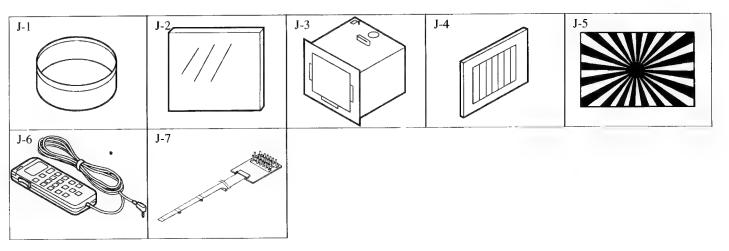


Fig.6-1-1.

1-1-2. Precautions

1. Switch settings

Adjust the switches to the following positions without loading the cassette tape unless otherwise specified.

(X24 MODEL).....SP

2. Adjustment sequence

Adjust in the given order.

3. Subject

- 1.) Set the camera and pattern box as shown in Fig. 6-1-2.
- 2.) Color bar chart (Standard picture frame)
- Adjust the picture frame as shown in Fig. 6-1-3.
- Adjust camera zooming and direction until the camera output waveform on the oscilloscope shown in Fig. 6-1-3 (a) and the color picture on the monitor TV shown in Fig. 6-1-3 (b) have been acquired.
- · Maintain this setup until adjustment is complete.

3.) White pattern (Standard picture frame)

Remove the color bar chart from the pattern box and adjust the camera setup until the white pattern picture frame is the same size and same position as the color bar chart (the standard picture frame).

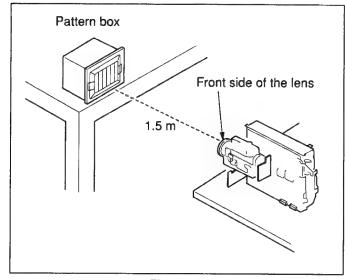


Fig. 6-1-2

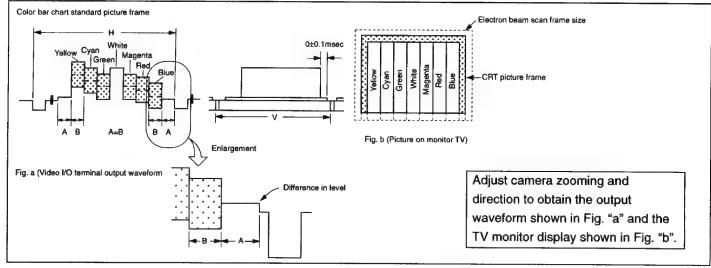


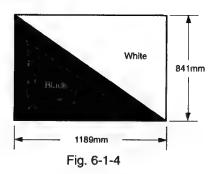
Fig. 6-1-3

4.) Chart for flange back adjustment

Join together a piece of white A0 size paper (1189 mm \times 841 mm) and a piece of black paper to make the chart shown in Fig. 6-1-4.

Note: Use a non-reflecting and non-glazing vellum paper.

The size must be A0 or larger and the joint between the white and black paper must not have any undulations.



1-1-3. Preparations

- Note 1: Refer to "2. Disassembly" for details of how to remove the cabinet and the respective boards.
- Note 2: Removal of the lens block and VC-167P board is not necessary if only adjustments are to be made.
- 1.) Connect the adjustment equipment as shown in Fig. 6-1-5.

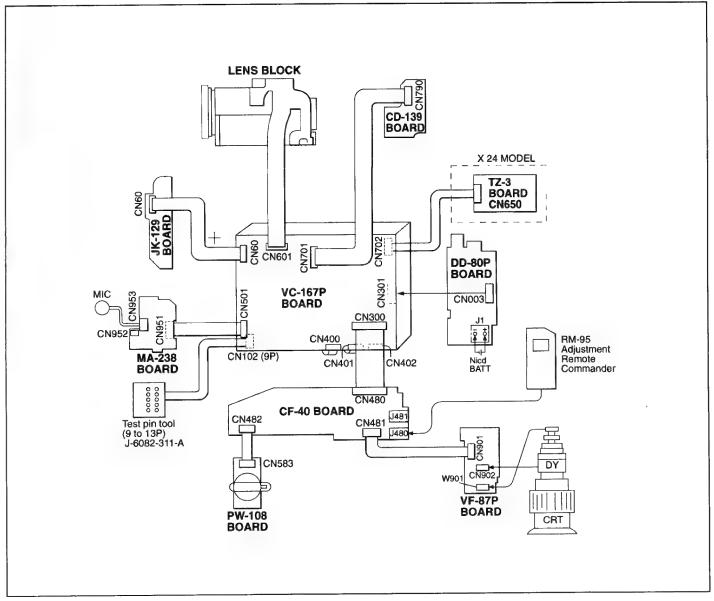


Fig. 6-1-5.

1-1-4. Adjustment remote commander (RM-95 upgraded)

To perform adjustment, the adjustment data stored in the non-volatile memory must be rewritten using the adjustment remote commander (RM-95 upgraded).

The adjustment remote commander uses the remote commander signal line (LANC) to interactively communicate with the merchandise. The page, address and up/down command data are sent from the adjustment remote commander to the merchandise. In return, the page, address and data are sent to the adjustment remote commander from the merchandise.

1. Using the adjustment remote commander

- Connect the adjustment remote commander to the LANC terminal (CF-40 board J480).
- 2) Set the NOR-ADJ (or HOLD) switch of the adjustment remote commander to the "ADJ" (or ON) (service) position. If the adjustment remote commander is correctly connected, the adjustment remote commander's LED will show the display as shown in Fig. 6-1-6.
- 3) Bit value discrimination

It is necessary to discriminate between the bit values with the data displayed on the adjustment remote commander for all following items. Identify whether the bit value is '1' or '0' with the use of the following diagram.

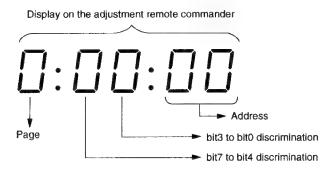


Fig 6-1-6

Display on the	Bit values						
adjustment	bit3	bit2	bit1	bit0			
remote	or	or	or	or			
commander	bit7	bit6	bit5	bit4			
0	0	0	0	0			
1	0	0	0	1			
2	0	0	1	0			
3	0	0	1	1			
4	0	1	0	0			
5	0	1	0	1			
6	0	1	1	0			
7	0	1	1	1			
8	l	0	0	0			
9	1	0	0	1			
A(A)	1	0	1	0			
В(Р)	l	0	1	1			
C([)	1	1	0	0			
D(d)	1	1	0	1			
E(<i>E</i>)	1	1	1	0			
F(F)	1	1	1	1			

(example) If "8E" is displayed on the adjustment remote commander, the bit values for bit7 to bit4 are shown in the 'A' column, and the bit values for bit3 to bit0 are shown in the 'B' column.

(A)

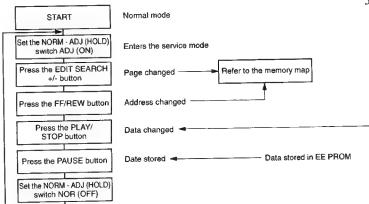
(B)

- 4) The adjustment remote controller is operated as follows:
- · Changing the page

The pages increase when the EDIT SEARCH (+) button is pressed and decrease when the EDIT SEARCH (-) button is pressed. Altogether there are 16 pages from page "0" to page "F".

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	Α	В	С	D	Е	F
LCD display	0	1	2	3	Ч	5	Б	7	8	9	A	Ь	Ε	d	Ε	F
Decimal notation after conversion	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

[Sequence of Service Modes Using the Adjustment Remote Commander]



Changing the address

The address increases when the FF (►►) button is pressed, and decreases when the REW (►►) button is pressed. Altogether there are 256 addresses from address "00" to address "FF". Some addresses, which are not used during adjustment, do not appear.

· Taking note the already-stored adjustment data

The previous adjustment can be erased if the adjustment remote commander is incorrectly handled. To prevent this, it is recommended that all the stored adjustment data be noted down on the attached page F address list.

Changing the data (Data setting)

The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. Altogether there 256 data from data "00" to data "FF".

Storing the data

< When changing adjustment data >

The EVR value (RAM) is changed to the new data.

(But the changed data is not stored in the EE PROM.)

Press the PAUSE button to store the adjustment data (page F) into the non-volatile memory.

(If the PAUSE button is not pressed after completing the adjustment, the new adjustment data will not be stored in the non-volatile memory.)

 After completing all adjustments, turn off the main power supply (7.2 V) once. This releases the adjustment mode (all modes except for page F).

Normal LANC Command Command Name Command Function Edit Search + Page + 1 Page Up Edit Search -Page - 1 Page Down Event Clear Sets the specified page Direct Page Set Fast Forward Address + 1Address Up Rewind Address - 1 Address Down Play Back Data + 1 Data Up Stop Data - 1 Data Down Stores data in the EE PROM. Pause Store

2. Precautions when using the adjustment remote commander

Mishandling of the adjustment remote commander may erase the correct adjustment data which has already been stored in the memory. To prevent this, it is recommended that all adjustment data is noted down on the attached page F address list before starting adjustments in addition to all new adjustment data after the completion of each adjustment step.

Page F Address List

Note 1: Data already stored in the adjustment data memo column are fixed values.

Note 2: The initial adjustment data values are the values which exist immediately after the execution of "F Page Data Initialization" and "F Page Data Modification". These differ from the values which exist after all adjustment have been performed.

Address Adjustment Data Initial Value Memo Column E0 E0 FF 0A 0B0C 0D0E 0F 9E 1A 7E 1B **C** 1D 1E 1F AD 9E C6 C1

Note 3: There are cases where data has been entered into F page addresses between 8C and EF, but these are not related to the adjustments.

Address	Adjustn	nent Data
	Initial Value	Memo Column
27	80	
28	48	
29	40	
2A	80	
2B	80	
2C	40	
2D	00	
2E	2D	
2F	D3	
30	2D	
31	FD (FC)	
32	F3 (F4)	
33	00	781-71
34	3C	- W.A.
35	00	
36	3E	
37	E0	
38	8F	
39	6C	
3A	36	
3B	3C	
3C	A3	
3D	0D	
3E	8E	
3F	12	
40	47	
41	10	
42	80	
43	80	
44	64	64
45	46	46
46	00	00
47	55	55
48	80	80
49	7B	7B
4A	80	80
4B	78	78
4C	80	80
4D	92	92

(): ×24 MODEL

ddress	Adjustn	nent Data	
	Initial Value	Memo Column	
4E	80	80	
4F	91	91	
50	80	80	
51	80	80	
52	80	80	
53	A8	A8	
54	CC	CC	
55	3C	3C	
56	1B	1B	
57	80	80	
58	80	80	
59	80	80	
5A	79	79	
5B	4C	4C	
5C	1A	1A	
5D	36 (32)	36 (32)	
5E	23	23	
5F	45	45	
60	16	16	
61	A2 (A1)	A2 (A1)	
62	A3	A3	
63	BA	BA	
64	2C (18)	2C (18)	
65	09	09	
66	66	66	
67	07 (03)	07 (03)	
68	66 (6B)	66 (6B)	
69	9F	9F	
6A	66	66	
6B	66 (6C)	66 (6C)	
6C	59 (5C)	59 (5C)	
6D	83	83	
6E	67	67	
6F	5D	5D	
70	5C	5C	
71	4A	4A	
72	1E (20)	1E (20)	
73	5C	5C	
74	3A (3C)	3A (3C)	
75	33	33	
76	02	02	
77	1B	1B	
78	E8	E8	
79	28	28	
7A	0D	OD	
7B	6A	6A	
7C	58	58	
7D	44	44	

Address	Adjustn	nent Data
	Initial Value	Memo Column
7E	33	33
7F	05	05
80	07	07
81	03	03
82	40	40
83	56	56
84	5D	5D
85	60	60
86	04	04
87	0F	0F
88	10	10
89	0A	0A
8A	38	38
8B	В0	В0
8C~E3		
E4~EF		
F0~FF		

1-2. CAMERA SYSTEM ADJUSTMENTS

1. Adjustment points when major parts have been replaced

When the CCD imager or lens block is replaced, adjust the items indicated by \bigcirc in the following table.

	When the CCD	When the lens block
	imager is replaced	is replaced
HALL adjustment		0
CCD imager compen-		
sation data writing		
Flange back adjustment	0	0
IRIS IN/OUT adjustment	0	0
MAX GAIN adjustment	0	
Color reproduction adjustment	0	
Auto white balance		
reference data input		
Auto white balance		
adjustment		

3. Preparation for adjustment

Objective: Make sure that the camera can be operated from the LANC line even if the mode control microprocessor's A/D port is left open.

Mode	Any Mode
Measuring Equipment	Remote controller RM-95 upgraded for LANC
Adjustment Page	Page 6, page F
Adjustment Address	00, 02

2. Power supply voltage check (VC-167P board)

Subject	Any subject		
Measuring equipment	Digital voltmeter		
DIG5V check			
Measurement Point	CN300 41) Pin		
	(CN300 38, 39 Pin: MT GND)		
Specification Value	4.86±0.15Vdc		
DIG3.5V check			
Measurement Point	CN300 30 Pin		
	(CN300 ③), ③ Pin: VTR GND)		
Specification Value	3.16±0.1Vdc		
CAM15V check			
Measurement Point	CN701 16 Pin		
	(CN701 ① Pin: GND)		
Specification Value	14.95±0.4Vdc		
CAM-8.5V check			
Measurement Point	CN701 (4) Pin		
	(CN701 ① Pin: GND)		
Specification Value	$-8.5 \pm 0.5 \text{Vdc}$		

Check procedure

1) Check that all power supply voltages satisfy the specified value.

If not, refer to "Video circuit, Power supply block adjustment".

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Turn the main power switch ON.
2	6	00	01	After setting the data, press the PAUSE button.
3	F	02	21	After setting the data, press the PAUSE button.
4	-			Turn off the UNREG power supply once, then turn it on.
5	6	00	00	After setting the data, press the PAUSE button.

Note 1: If data 01 is set to page 6, address 00, the adjustment for page F, address 01 to 8B can also be performed.

Note 2: When all adjustments of the camera system is completed, set data 00 to the page F, address 02.

4. Initialization of page F data

Note 1: Execute the initialization of page F only when the non-volatile memory (VC-167P board IC401 EE PROM) is replaced.

Note 2: If the page F data has been initialized, all adjustment items of the camera section must be executed again.

Initializing procedure:

Order	Page	Address	Data	Procedure
1				Turn OFF and ON the main power supply. (Preparation)
2	6	00	01	After setting the data 01 to the address, press the PAUSE button.
3	6	11		Confirm that the data is 00.
4	6	01	2D	After setting the data, Press the PAUSE button. (Execution of page F data initialization. By this operation, all the data from address 01 to EF are initialized.)
5	6	11		Confirm that the data is 01.

Works required after initialization

After setting the data, Press the PAUSE button.
After setting the data, Press the PAUSE button. (End)
Perform the next item "5. Page F Data Modifications", hen execute all adjustment items of the camera section.

Related Adjustments:

All items of camera adjustment excluding "28 MHz Crystal Oscillator Adjustment".

5. V SUB adjustment

Subject	Not required
Adjustment Page	F
Adjustment Address	26

Related Adjustments:

"MAX gain adjustment", "Auto white balance reference data input", "Auto white balance adjustment", "Color reproductivity adjustment".

Adjustment method:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	26		Reading a voltage code of V SUB indicated by CCD imager then input data of a table (Fig.6-1-7)
3	F	26		Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

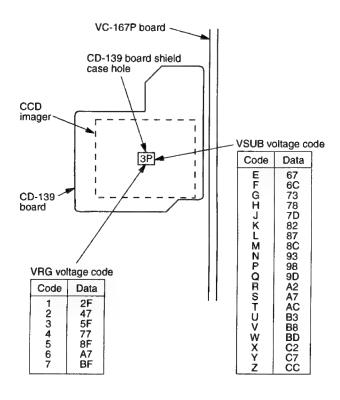


Fig 6-1-7

6. VRG adjustment

Subject	Not required
Adjustment Page	F
Adjustment Address	27

Adjustment method:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	27		Reading a voltage code of V SUB indicated by CCD
				imager then input data of a table (Fig.6-1-7)
3	F	27		Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

7. Page F data modification

All the data of page F are automatically initialized if the initialization is executed. However, among the initialized data, the following addresses require manual modification of data after the page F data is initialized.

Modification procedure:

0.4	Dono	Address	Data		Procedure
Order	Page	Address	X10 model	X24 model	
1	6	00	01		After setting the data, Press the PAUSE
ļ			·		button. (Preparation)
2	F	04	90	60	
	l i	07	ì - I	07	Set each data to each address, and press
		08	14	14	the PAUSE button.
		31	-	FC	
		32	-	F4	
		54	AA	AA	
		5D	-	32	
		5E	24	-	
		60	-	15	
		61	A4	В8	
		63	85	82	
		64	-	20	
		65	-	00	
		67	-	03	
		68	-	6B	
		6B	-	6C	
		6C	-	5C	
		72	-	20	
	ļ	74	1	3C	
		78	-	D8	
		7C	5C	-	
		7D	62	-	
		8B	D0	D0	
		E4-EF	00	00	
		F5	A8	A8	
		F6	5E	5E	
		F7	C4	94	

8. 28 MHz crystal oscillator adjustment

Purpose:

Adjusts 28 MHz crystal controlled oscillation

for synchronizing clock.

Adjustment error: Loss of synchronization or loss of color

Subject	Note required
Measurement Point	IC201 🚱 pin
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	25
Specification	4433618.75 ± 17Hz

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	25		Change the data using PLAY, STOP buttons until the
]]		frequency satisfies the specification.
3	6	00	00	After setting the data, press the PAUSE button. (End)

Reference: Conversion between the hexadecimal number and decimal number.

In some adjustment items, data appears in hexadecimal numbers on the DDS display or on the adjustment remote commander. Maintenance engineers are expected to convert the displayed hexadecimal numbers to the corresponding decimal numbers using the following conversion table. Make a required calculation described in each adjustment item. Then re-convert the result of calculation back from the decimal numbers to the corresponding hexadecimal numbers using the following conversion table.

Hexadecimal-Decimal Conversion Table Lower digit of hexa-Α В C D Ε F Upper digit decimal (R)(b) (L)(E)(d) (F) of hexadecimal A(H) $(1) \rightarrow$ В(Ь) C([])D(d)E(E)F(F)

Note:

The characters shown in the parenthesis () shows the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (bd);

Because the upper digit of the hexadecimal number is B (b), and the lower digit is D (d), the meeting point "189" of (1) and (2) in the above table is the corresponding decimal number.

< How to convert the decimal number to hexadecimal number >

The decimal numbers are divided into following three categories. Calculation method is different in three categories respectively.

 $(1)0 \sim 255$

$$00h\sim FFh$$

(2)256~4095

(3)4096~65536

$$1000h \sim FFFFh$$

If the decimal number fall into the category (1);

- 1) Divide the decimal number by 16. Result is "A".
- 2) Take the integer portion of the number "A" as "B".
- 3) Calculate the equation (A-B) x 16. Result is "C".
- "B" is the second digit number of the hexadecimal number and "C" is the first digit number of the hexadecimal number. (BC)h

(Example)

If the decimal number is "189";

- 2) (B)
- 3) (11.8125-11)×16=13....(C)
- 4) $189 \rightarrow (BD)h$ is obtained.

If the decimal number fall into the category (2);

- 1) Divide the decimal number by 256. Result is "A".
- 2) Take the integer portion of the number "A" as "B".
- 3) Calculate the equation (A-B) x 256. Result is "C".
- 4) Take the integer portion of the number "C" as "D".
- 5) Calculate the equation (C-D) x 16. Result is "E".
- 6) "B" is the third digit number, "D" is the second digit number and "E" is the first digit number of the hexadecimal number. (BDE)h

(Example)

If the decimal number is "2100";

1)
$$2100 \div 256 = 8.203125$$
 (A)

† .

2) (B)

3)
$$(8.203125-8)\times 256 \div 16 = 3.25$$
....(C)

4) (D)

6) $2100 \rightarrow (834)$ h is obtained.

If the decimal number fall into the category (3);

- 1) Divide the decimal number by 4096. Result is "A".
- 2) Take the integer portion of the number "A" as "B".
- 3) Calculate the equation $(A-B) \times 4096 \div 256$. Result is "C".
- 4) Take the integer portion of the number "C" as "D".
- 5) Calculate the equation (C-D) \times 256 \div 16. Result is "E".

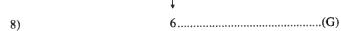
- 6) Take the integer portion of the number "E" as "F".
- 7) Calculate the equation (E-F) x 16. Result is "G". (Round the number "G" to count fractions of 0.5 and over as a unit and cut away the rest.)
- 8) "B" is the fourth digit number, "D" third digit number, "F" is the second digit number and "G" is the first digit number of the hexadecimal number. (BDFG)h

(Example)

If the decimal number is "31814";

- 1) 31814÷4096=7.7670898.....(A)
- 2) (B)
- 3) $(7.7670898-7)\times4096\div256=12.273436...$ (C)
- 4) (D)
- 5) $(12.273436-12)\times 256 \div 16 = 4.374976...$ (E)
- ↑ (F)
- 7) $(4.374976-4)\times 16=5.999616$

(Round the number to count fractions of 0.5 and over as a unit and cut away the rest.)



9) $31814 \rightarrow (7C46)$ h is obtained.

< How to convert the hexadecimal number to decimal number >

If the hexadecimal number is (ABCD)h, the decimal number is calculated by the following equation.

 $(A \times 4096) + (B \times 256) + (C \times 16) + (D \times 1) =$ decimal number

(Example) If the hexadecimal number is "(3BA4)h":

 $(3\times4096)+(11\times256)+(10\times16)+(4\times1)=15268$

9. HALL adjustment

Purpose: Variation of the HALL element outputs is

removed by adjusting amplifier gain and offset. The HALL elements detect the lens

iris position.

Adjustment error: Oscillation of lens iris, or incorrect white

balance indoor and outdoor.

Subject	Not required	
Measurement Point	DDS display on the EVF or monitor TV	
Measuring Instrument		
Adjustment Page	F	
Adjustment Address	2A	
	2B	
Specification	13 to 17h when iris is opened.	
	77 to 7Bh when iris is closed.	

Adjustment procedure:

1 6 00 01 After setting the data, press the PAUSE button. (Preparation) 2 F 02 21 After setting the data, press the PAUSE button. 3 Turn off the UNREG power supply once, then turn it on. 4 6 00 01 After setting the data, press the PAUSE button. 5 6 02 03 After setting the data, press the PAUSE button. 6 01 03 After setting the data, press the PAUSE button. 7 F 2A 40 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W2. 8 F 2A 30 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W1. 9 6 01 01 After setting the data, press the PAUSE button. 10 F 2A 30 After setting the data, press the PAUSE button.	
Turn off the UNREG power supply once, then turn it on. 4 6 00 01 After setting the data, press the PAUSE button. 5 6 02 03 After setting the data, press the PAUSE button. 6 01 03 After setting the data, press the PAUSE button. 7 F 2A 40 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W2. 8 F 2A 30 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W1. 9 6 01 01 After setting the data, press the PAUSE button.	
4 6 00 01 After setting the data, press the PAUSE button. 5 6 02 03 After setting the data, press the PAUSE button. 6 6 01 03 After setting the data, press the PAUSE button. 7 F 2A 40 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W2. 8 F 2A 30 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W1. 9 6 01 01 After setting the data, press the PAUSE button.	
5 6 02 03 After setting the data, press the PAUSE button. 6 01 03 After setting the data, press the PAUSE button. 7 F 2A 40 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W2. 8 F 2A 30 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W1. 9 6 01 01 After setting the data, press the PAUSE button.	
6 01 03 After setting the data, press the PAUSE button. 7 F 2A 40 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W ₂ . 8 F 2A 30 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W ₁ . 9 6 01 01 After setting the data, press the PAUSE button.	
F 2A 40 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W ₂ . 8 F 2A 30 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W ₁ . 9 6 01 01 After setting the data, press the PAUSE button.	
appearing on the DDS display note. The read-out data is W ₂ . 8 F 2A 30 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W ₁ . 9 6 01 01 After setting the data, press the PAUSE button.	
8 F 2A 30 After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W ₁ . 9 6 01 01 After setting the data, press the PAUSE button.	
appearing on the DDS display note. The read-out data is W ₁ . 9 6 01 01 After setting the data, press the PAUSE button.	
9 6 01 01 After setting the data, press the PAUSE button.	
10 D 2A 20 After setting the data mass the DATISE history Boad the data	
10 F 2A 30 After setting the data, press the PAUSE button. Read the data	
appearing on the DDS display note. The read-out data is K ₁ .	
11 F 2A 40 After setting the data, press the PAUSE button. Read the data	
appearing on the DDS display note. The read-out data is K ₂ .	
Convert the data W ₁ , W ₂ , K ₁ and K ₂ into the decimal numbers. The result decimal result d	umbers are
W ₁ ', W ₂ ', K ₁ ' and K ₂ '. (Use the < How to convert the hexadecimal number to decim	al number >
or "Hexadecimal-Decimal Conversion Table". Calculate the following equation	on
(decimal number calculation) to obtain X ₁ '.	
13 $A' = W_2' + K_1' - W_1' - K_2'$ equation 1	
$B' = W_1' - K_1'$ equation 2	
$X_{1'} = \frac{1600 + (48 \times A') - (16 \times B')}{A'}$ equation 3	
A	
Convert the decimal number X_1 to the hexadecimal number to obtain X_1 .	(Round the
number X ₁ to count fractions of 0.5 and over as a unit and cut away the res	t.)
F 2A Set the data X ₁ (obtained at step 14).	
Press the PAUSE button.	
17 F 2B Change the data using the PLAY and STOP until 15	
appears on the DDS display.	
Press the PAUSE button.	
19 6 01 03 After setting the data, press the PAUSE button.	
If the DDS display shows the data in the range from 77 to 7B, it indicates the end of	adjustment,
and proceed to the item "Processing after Adjustments". If it is not, use the DDS di	play data as
W0 and proceed to step 21 and followings.	

Note: Lower two digits of the data which is displayed at the right bottom of he EVF or TV monitor

Order	Page	Address	Data	Procedure
21				Convert the value W ₀ to a decimal value to obtain the value W ₀ '.
22				Calculate the value X2' from the following equation
				(decimal calculation).
				$C' = W_0' + K_1' - W_1' - 20$ equation 4
				$X_{2}' = \frac{(100 - B') \times (X_{1}' - 48) + (48 \times C') \dots \text{equation 5}}{C'}$
				(The values X ₁ ' and B' are obtained from the equations
				2 and 3 in step 13.)
23				Convert the value X2' to a hexadecimal number to obtain X2.
	1			(Round the number X ₂ to count fractions of 0.5 and over as a unit and
				cut away the rest.)
24	F	2A		Set the data X ₂ (which is the result of calculation in step 23).
25	F	2A		Press the PAUSE button.
26	F	2B		Change data using PLAY and STOP button until 79
				appears on the DDS display.
27	F	2B	-	Press the PAUSE button.
28	6	01	01	After setting the data, press the PAUSE button.
29		_		Confirm that the DDS display shows the data in the
				range from 13 to 17.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	02	00	After setting the data, press the PAUSE button.
2	6	01	00	After setting the data, press the PAUSE button.
3	F	02	00	After setting the data, press the PAUSE button.
4				Turn off the UNREG power supply once, then turn it on.
5	6	00	00	After setting the data, press the PAUSE button. (End)

Related adjustments:

"IRIS IN/OUT adjustment"

10. Flange back adjustment

Purpose:

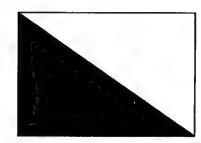
Automatic flange back adjustment of inner

focus lens.

Adjustment error: Loss of focus when switched between auto

focus and manual focus.

rocus and manual rocus.						
	Chart for flange back adjustment					
Subject	(Placed 2000 ±5 mm in front of the					
Subject	lens with illumination of 300 ±50					
	lux.)					
Measurement Point	Confirm the focus on monitor TV.					
Measuring Instrument	Confirm focus on monitor TV					
Adjustment Page	F					
	3C					
	3D					
A divistment Address	3E					
Adjustment Address	3F					
	40					
	41					



(Chart for flange back adjustment) (See Page 6-2)

Confirm that the "Camera-shaking correction "and Note:

"Digital Zoom" are turned OFF. (X24 MODEL)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Check that the center of the flange back adjustment chart
	ļ	,		coincides with that of the display on the monitor at both
				ends: TELE end and the WIDE end of the zoom lens.
2	6	00	01	After setting the data, press the PAUSE button. (Preparation)
3				Confirm that the data at page F, address 1B is the initial
				value, referring to the "Page F address list".
4	6	11	_	Confirm that the data is 00.
5	6	42	02	After setting the data, press the PAUSE button.
6	6	43	01	After setting the data, press the PAUSE button.
7	6	01	13	After setting the data, press the PAUSE button.
8	6	01	15	After setting the data, press the PAUSE button.
				The adjustment data is automatically input to page: F,
				addresses: 3C to 41.
9	6	11		Confirm that the data is 01.
10	6	42	00	After setting the data, press the PAUSE button.
11	6	43	00	After setting the data, press the PAUSE button.

Processing after Adjustments:

1 0000311	ig after Augustinents.					
Order	Procedure					
1	Turn the main power supply (7.2 V) OFF, then ON.					
	(If this step is not performed, the camera will be out					
	of focus.)					

11. Flange back check

Subject	Siemens star (Placed 2000 ±5 mm in front of the lens with illumination of about 200 lux.)	
Measurement Point	Confirm focus on monitor TV	
Measuring Instrument		
Specification Value	Picture must have good focus at	
	both TELE and WIDE ends.	

Note 1: Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (X24 MODEL)

Note 2: It is judged from the page A display on the adjustment remote commander if the picture has good focus while the auto focus is ON.

1) Set data: 0B to the page:6, address: 02.

Focus condition can be known from the page A display.

A: 00 : XX

odd number: Picture is in focus.

even number: Picture is out of focus.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Place a Siemens star at 2 meters in front of lens.
2				Decrease illumination to the chart down to a point before noise appears on monitor TV,
_				in order to fully open the IRIS.
3	6	42	02	After setting the data, press the PAUSE button.
4	6	43	01	After setting the data, press the PAUSE button.
5				Shoot the Siemens star at TELE end.
6				Confirm that the image is in focus. (Note2).
7	6	21	10	After setting the data, press the PAUSE button.
8				Shoot the Siemens star at WIDE end.
9				Confirm that the image is in focus.

Processing after Adjustments:

Processin	g anter Auj	ustilicitis.		
Order	Page	Address	Data	Procedure
1	6	02	00	After setting the data, press the PAUSE button.
2	6	21	00	After setting the data, press the PAUSE button. (END)
3	6	42	00	After setting the data, press the PAUSE button.
4	6	43	00	After setting the data, press the PAUSE button.

12. Picture frame setting

Subject	Color bar chart standard picture frame
Measurement Point	VIDEO output terminal
	(Terminated in 75 Ω)
Measuring Instrument	Oscilloscope and monitor TV
Specification Value	A=B, C=D, t=0±0.1msec

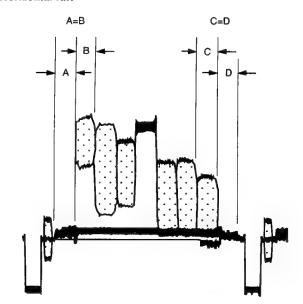
Note: Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (X24 MODEL)

Setting procedure:

0.1	
Order	Procedure
1	Turn OFF the auto focus.
2	Adjust the focus using the focus knob.
3	Adjust direction and zoom of camera so that the
	picture frame is adjusted as specified by Fig. 6-1-8
	and Fig. 6-1-9.
4	Write down markings on the picture frame on
	the monitor screen. If the "color bar chart standard
	picture frame" or "white pattern standard picture
	frame" is specified in the following adjustment items,
	obtain this picture frame.

Confirm with an oscilloscope

1. Horizontal rate



2. Vertical rate

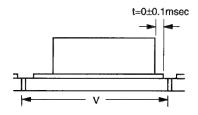


Fig. 6-1-8

Confirm on TV monitor (underscanned display)

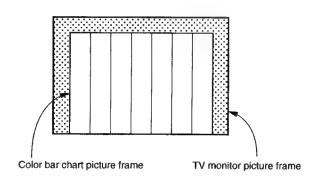


Fig. 6-1-9

13. Color reproduction adjustment

Purpose:

Adjust the three primary color matrix

coefficients for correct color reproduction.

Adjustment error: Poor color reproduction.

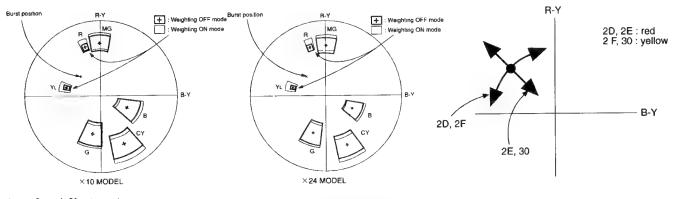
Subject	Color bar chart standard picture frame
Measurement Point	VIDEO output terminal
	(Terminated in 75 Ω)
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	2D, 2E, 2F, 30
Specification Value	Each spot must be located within the
	specified color reproduction zone on a
	vectorscope display.

Note: Confirm that the "Camera-shaking correction "and

"Digital Zoom" are turned OFF. (X24 MODEL)

Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)	
2	6	42	02	After setting the data, press the PAUSE button.	
3	6	03	00	After setting the data, press the PAUSE button. (Setting)	
4	6	01	37	After setting the data, press the PAUSE button.	
5	F	2D, 2E 2F, 30		Change the data so that each spot must be located within the specified color reproduction zone on a vectorscope display. Press the PAUSE button for each address.	Weighting OFF mode.



Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	6	03	10	After setting the data, press the PAUSE button. (Setting)
3	6	42	00	After setting the data, press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

Related Adjustments:

[&]quot;Auto white balance reference data input"

[&]quot;Auto white balance adjustment"

14. IRIS IN/OUT adjustment

Purpose: Measure the light level and write into EE

PROM for indoor/outdoor identification in

auto white balance.

Adjustment error: Incorrect white balance.

Subject	White pattern standard picture frame	
Measurement Point	EVF or DDS display of monitor TV	
Measuring Instrument	EVF of DD3 display of monitor 1 v	
Adjustment Page	F	
Adjustment Address	3A	
	3B	

Note: Confirm that the "Camera-shaking correction "and

"Digital Zoom" are turned OFF. (X24 MODEL)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	02	21	After setting the data, press the PAUSE button.
3				Turn off tje UNREG power supply once, then turn it on.
4	6	00	01	After setting the data, press the PAUSE button.
5	6	11		Confirm that the date is 00,,
6	6	01	4B	After setting the data, press the PAUSE button.
7	6	01	49	After setting the data, press the PAUSE button.
8	6	11		If data is 01, this is the end of data read.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	F	02	00	After setting the data, press the PAUSE button.
3				Turn off tje UNREG power supply once, then turn it on.
4	6	00	00	After setting the data, press the PAUSE button. (End)

The page: A data appears on DDS of monitor TV.

15. MAX gain adjustment

Purpose: Set

Sets the minimum illumination level.

Adjustment error: Normal video level cannot be obtained at low

illumination (dark).

Subject	White pattern standard picture frame
Measurement Point	VIDEO output terminal
	(Terminated in 75 Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	2C
Specification Value	$A = 615 \pm 10 \text{ mV} (\times 10 \text{ MODEL})$
-	$A = 390 \pm 10 \text{ mV} (\times 24 \text{ MODEL})$

Note: Confirm that the "Camera-shaking correction "and

"Digital Zoom" are turned OFF. (X24 MODEL)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	19	After setting the data, press the PAUSE button.
3	F	2C		Change data using PLAY and STOP buttons so that the
				Y signal level (A) satisfies the specification.
				The data which satisfies the Y signal level (A) is called "D2c".
4	F	2C		Set the data "D2c" and press the PAUSE button (×24 model).
5	F	2C		Calculate to subtract 28h from "D2c" (data = "D2c" -28h).
				Set result of the calculation and press the PAUSE button.
				(X10 MODEL).

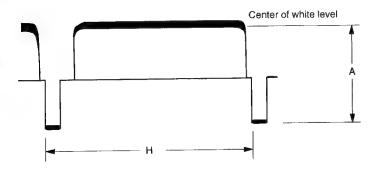


Fig. 6-1-10.

Processing after Adjustments:

rocessing arter reajestines.				
Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	6	00	00	After setting the data, press the PAUSE button. (End)

16. Auto white balance reference data input

Subject	White pattern standard picture frame
Adjustment Page	F
Adjustment Address	33, 34,
	35, 36

Note 1: Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (X24 MODEL)

Note 2: The "Color reproduction adjustment" must have been completed before making this adjustment.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Turn the main power OFF then to ON.
2				Shoot a white pattern with the standard picture frame.
3	6	00	01	After setting the data, press the PAUSE button.
4	6	11		Confirm that data is 00.
5	6	01	11	After setting the data, press the PAUSE button.
6	6	01	0D	After setting the data, press the PAUSE button.
				(Executes the auto white balance reference data input.)
7	6	11		If data is 01, this is the end of data read.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2				Execute "Auto white balance adjustment".
3	6	00	00	After setting the data, press the PAUSE button. (End)

Related Adjustments:

Auto white balance adjustment

17. Auto white balance adjustment

Purpose:

Adjust for correct auto white balance.

Adjustment error: Poor color reproduction.

Subject	White pattern standard picture frame
Filter	Color temperature correction filter C14
Measurement Point Measuring Instrument	EVF or DDS display on monitor TV
Adjustment Page	F
A 1º A 11	38
Adjustment Address	39
2 12 1 11 1	R ratio 2A80±40h
Specification Value	B ratio 5E80±80h

Note 1: Make this adjustment after "Auto white balance

reference data input" is completed.

Note 2: Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (X24 MODEL)

Adjustment procedure:

Aajustmei	n procedu	1		
Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation 1)
2	F	02	21	After setting the data, press the PAUSE button. (Preparation 2)
3			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Turn off the UNREG power supply once, then turn it on.
4	6	00	01	After setting the data, press the PAUSE button.
5	6	01	35	After setting the data, press the PAUSE button.
6	6	02	04	After setting the data, press the PAUSE button.
				Sets the R ratio display mode.
7	F	38		Change data using the PLAY and STOP buttons until the R ratio data on
				the DDS display becomes the specification value.
				R ratio data = $2000h+10h\times D_{F5}$ (D_{F5} = Page F, Address: F5 data)
8	6	02	05	After setting the data, press the PAUSE button.
				Sets the B ratio display mode.
9	F	39		Change data using the PLAY and STOP buttons until the B ratio data on
				the DDS display becomes the specification value.
				B ratio data = $80h+100h \times D_{F6}$ (D_{F6} = Page F, Address: F6 data)
10.				Press the PAUSE button.

Processing after Adjustments:

1 to cosmig area a a factoristical and a facto				
Page	Address	Data	Procedure	
6	01	00	After setting the data, press the PAUSE button.	
6	02	00	Releases the B ratio display mode.	
F	02	00	After setting the data, press the PAUSE button. (End 2)	
			Turn off the UNREG power supply once, then turn it on.	
6	00	00	After setting the data, press the PAUSE button. (End 1)	
		Page Address 6 01 6 02 F 02	Page Address Data 6 01 00 6 02 00 F 02 00	

18. White balance check

Subject	White pattern standard picture frame
Filter	Color temperature correction filter C14
	ND filter 1.0 and 0.3
Measurement Point	VIDEO output terminal
	(Terminated in 75 Ω)
Measuring Instrument	Vectorscope
Specification Value	Fig. 6-1-11. A ~ C

Note: Confirm that the "Camera-shaking correction "and "Digital Zoom" are turned OFF. (X24 MODEL)

Check procedure:

Order	Page	Address	Data	Procedure	Condition
1				Check that the lens is not covered by either filter.	
2	6	01	0F	After setting the data, press the PAUSE button.	
3				Check that the white luminance point is located within the circle shown in Fig. A.	Without filter.
4	6	01	00	After setting the data, press the PAUSE button.	
5	6	01	23	After setting the data, press the PAUSE button.	
6				Put the C14 filter on the lens.	7, 34
7				Check that the white luminance point is located within the circle shown in Fig. B.	C14 filter.
8				Remove the C14 filter and put ND filter 1.3 (1.0 + 0.3) on the lens.	
9				Check that the white luminance point is located within the circle shown in Fig. C.	ND Filter 1.3

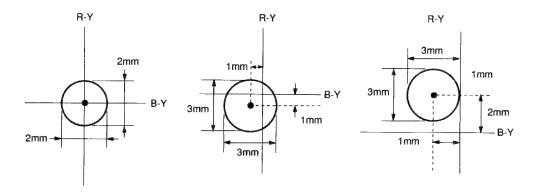


Fig. 6-1-11. A

Fig. 6-1-11. B

Fig. 6-1-11. C

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	6	00	00	After setting the data, press the PAUSE button. (End)

[X24 MODEL]

19. Camera-shaking correction adjustment

The "Camera-shaking correction adjustment" is necessary only when the angular speed sensor is replaced. If microprocessors or circuit is replaced or repaired, this adjustment is not necessary. Make operation check only.

Subject	
Measurement Point	VIDEO output terminal
	(Terminated in 75 Ω)
Measuring Instrument	Oscilloscope or TV monitor
Adjustment Page	F
	42
Adjustment Address	43
Specification Value	Horizontal residual vibration ≤0.5µsec
	Vertical residual vibration ≤0.2msec

Note 1: Caution when replacing parts

The two types of parts: ENC05EA and ENC05EB are supplied. Use the same type of sensor as that of the defective sensor. If different type of either ENC05EA or ENC05EB is used, picture can vibrate vertically or horizontally during camera-shake correction. After replacement, make adjustment as described.

Note 2: Caution on angular speed sensor

The angular speed sensor has high precision vibrator inside. If the sensor is dropped, balance of the vibrator is lost resulting in faulty operation. Handle the sensor carefully.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	42	07	After setting the data, press the PAUSE button.
3	6	01	3F	After setting the data, press the PAUSE button.
4				Obtain the vertical data from the following equation using the value
				indicated on SE650 of the TZ-3 board as the sensor sensitivity value.
				(Result of calculation must be converted to hexadecimal value.)
				[Vertical data] Hex= 148d Sensor sensitivity value Sensor sensitivity value
5	F	42		Set the [Vertical data] Hex value to the page F, address
				42 and press the PAUSE button.
6				Obtain the horizontal data from the following equation using the value
				indicated on SE651 of the TZ-3 board as the sensor sensitivity value.
				(Result of calculation must be converted to hexadecimal value.)
				[Horizontal data] Hex= $\frac{121d}{\text{sensor sensitivity value}} \times [\text{Hex}]$
7	F	43		Set the [Horizontal data] Hex value to the page F,
				address 43 and press the PAUSE button.
8				Confirm that "Camera-shaking correction adjustment" works correctly.
9	6	00	00	After setting the data, press the PAUSE button. (End)
10	6	42	00	After setting the data, press the PAUSE button.
11	6	01	00	After setting the data, press the PAUSE button.

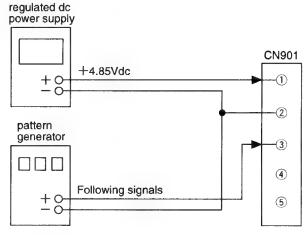
Note: Phase of the residual vibration must be in the same phase as that while no correction is applied.

20. Electronic viewfinder system adjustments (VF-87P board)

Note: About 2200V dc is applied to CRT anode and about 200 Vdc to the grid. Be careful not to touch them. If hand touches them, there is danger of electric shock

Preparation:

- 1. Disconnect a flexible board from CN901 on VF-87P board.
- 2. Connect equipments as follows.



Required signals

1. Monoscope signal

Output amplitude:

1.0 V p-p (75 Ω terminated)

Horizontal resolution:

600 TV lines or more

Vertical resolution:

350 TV lines or more

2. Dot pattern signal

Output amplitude

 $1.0 \text{ V p-p } (75\Omega \text{ terminated})$

3. Contrast signal

Output amplitude

 $0.5 \text{ V p-p } (75\Omega \text{ terminated})$

fH:

15.625kHz

fV:

50Hz

Others: Complies with PAL. (Refer to Fig. 6-1-12.)

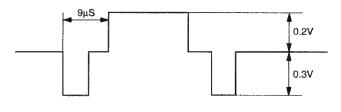


Fig. 6-1-12

20-1. Power supply voltage check

Measuring Instrument	Digital voltmeter	
EVF5V		
Measurement Point	CN901 Pin-1	
Specification Value	4.85±0.01Vdc	

20-2. Horizontal and vertical position

Purpose:

Maintains horizontal position.

Adjustment error: Horizontal position cannot be maintained.

Signal	Monoscope signal
Adjustment	
Specification Value	Overscan 7±3%
	(horizontal) (one side)
	Overscan 7±5% (vertical) (one side)

Adjustment procedure:

Order	Procedure
1	Confirm that the horizontal and vertical picture
	sizes satisfy the specification values.

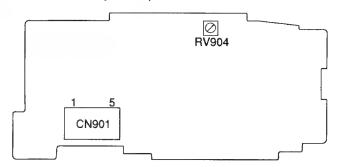
20-3. BRIGHT adjustment

Signal	Contrast signal
Adjustment	RV904
Specification Value	19±4cd/m²

Adjustment procedure:

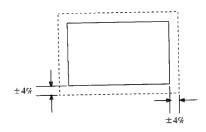
Order	Procedure
1	Brightness of the dark portion of the contrast signal
	satisfies the specification value.
2	heck by inputting the character generator signal that
	too much halation does not exist.

VF-87P BOARD (SIDE A)



20-4. Centering adjustment

Signal	Monoscope signal
Adjustment	DY centering
Specification Value	±4%



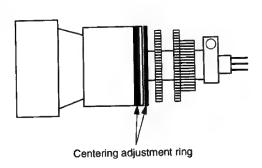
Adjustment procedure:

Order 1

Data Procedure
Adjust DY centering adjustment ring so that margins
at top, bottom, right and left are equal.

Note: The centering position is affected by earth magnetism.

Rotate the camera 360 degrees and find the amount of centering change. Make the adjustment to the center of the change.



20-5. Focus adjustment

Signal	Monoscope signal
Adjustment	DY focus ring
Specification Value	Horizontal resolution is 350 lines or
	more.

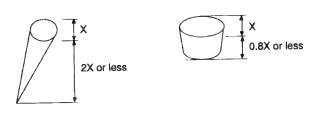
Adjustment procedure:

•	
Order	
1	A

Procedure
Adjust focus ring for optimum focus. Confirm that
the horizontal resolution satisfies the specification.

20-6. Diffraction adjustment

Signal	Dot pattern, Monoscope signal
Adjustment	DY diffraction adjustment ring
Specification Value	Refer to the illustration below.

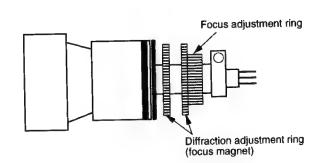


Adjustment procedure:

Order	Procedure
1	Adjust the diffraction adjustment ring so that tail of a dot
-	must be smaller than 2 times of dot diameter, or the fan-
	shaped diffraction must smaller than the dot diameter.
2	If the focus and centering are affected by this
	adjustment, input monoscope signal and repeat focus
	and centering adjustments.

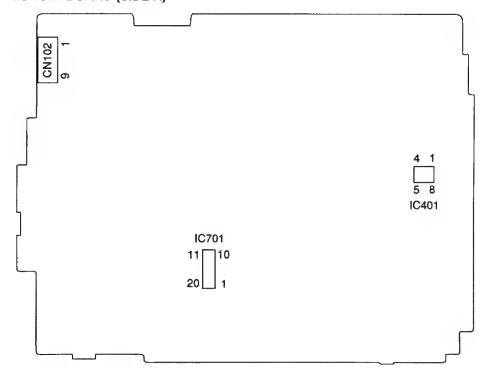
Related Adjustments:

Focus adjustment Centering adjustment

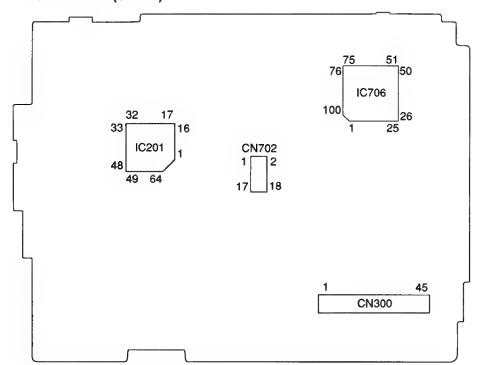


ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VC-167P BOARD (SIDE A)



VC-167P BOARD (SIDE B)



6-2. MECHANISM SECTION ADJUSTMENTS

Refer to the separate "8 mm Video Mechanism Section Adjustment Manual WI B Mechanism" for adjustment, check procedure and mechanical parts replacement.

2-1. HOW TO OPERATE THE MECHANISM AFTER THE CASSETTE COMPARTMENT IS REMOVED

1. How to load a cassette tape:

- Refer to "1. Disassembly" and turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
- Connect the adjustment remote commander and set the NORM - ADJUST (HOLD) switch to ADJUST (ON) position.
- 3) Check that the main power is being supplied.
- 4) Select page: 6, address: 00, set data:01 and press the PAUSE button
- 5) Select page: F, address: 02, set data: 01 and press the PAUSE button.
- 6) Turn off the power supply once, then turn it on.
- Set the NORM ADJUST (HOLD) switch to NORM (OFF) position. (The adjustment remote commander can be disconnected hereafter.)

- 8) Press the push-switch-1 knob in the direction of arrow which sets the machine into loading mode.
 - I PB, FF/REW and CUE/REV operations are possible.
- 9) After completing all steps of above operation, be sure to perform "4. Processing after operation".

2. How to establish RECORD mode:

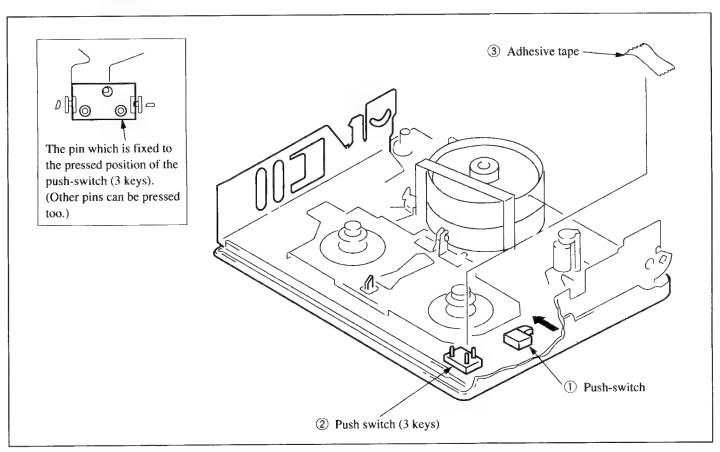
- 1) Press pin of the push-switch 2 (ON state) and keep the ON state by fixing with adhesive tape.
- Turn the main power switch ON (select VTR or CAMERA position of camera).
- Set the RECORD switch to ON.
 (When the test mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

4. Processing after operation

- Connect the adjustment remote commander and set the NORM - ADJUST (HOLD) switch to ADJUST (ON) position.
- 2) Select page 6, address: 00, set data: 01 and press the PAUSE button.
- 3) Select page: F, address: 02, set data: 00 and press the PAUSE button.
- 4) Remove the power supply to the machine.



2-2. TAPE PATH ADJUSTMENT

Purpose: Adjusts the head linearity.

Adjustment Error: Noise appears on top and bottom of display

when playing back the tape recorded by other

machines.

1. Preparations for adjustments

- 1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
- Connect the adjustment remote commander to the REMOTE terminal (JACK block).
- 3) Set the NORM ADJUST (HOLD) switch to ADJUST (ON) position.
- 4) Check that the main power is being supplied.
- 5) Select page: 6, address: 00, set data:01 and press the PAUSE button
- 6) Select page: F, address: 02, set data: 03 and press the PAUSE button.
- 7) Turn off the power supply once, then turn it on.
- 8) Connect an oscilloscope.

CH1: VC-167P board CN102 pin ①.

External trigger: VC-167P board CN102 pin 8.

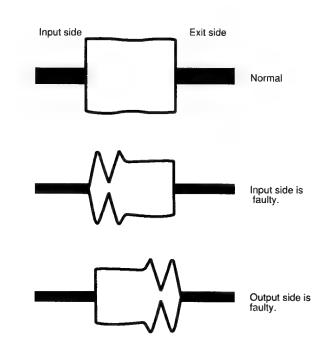
- 9) Playback the tracking alignment tape (WR5-1CP).
- 10) Check to see that RF waveform is flat at input and exit sides on oscilloscope.

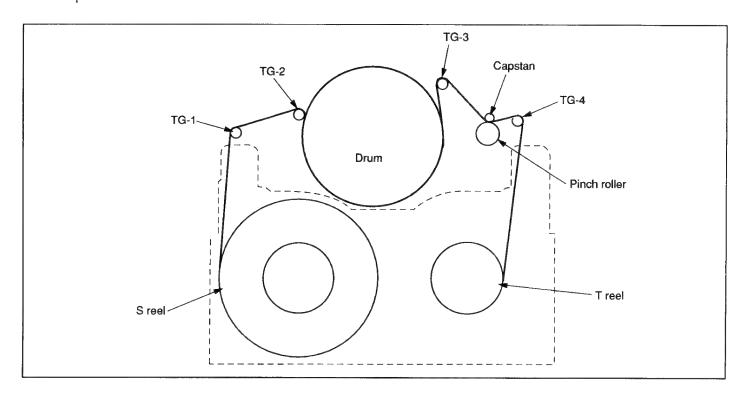
If it not flat. Tape Path Adjustment" of the 8 mm Video Mechanism Section Adjustment Manual VI B Mechanism.

11) After completing the adjustment, perform "2-1-4. Processing after operation".

VC-167P board CN102

1	PB RF
2	REC 2
3	GND
4	EMPH IN
5	CAM Y IN
6	DEEMPH OUT
7	BPF ADJ
8	RF SWP
9	CAP FG





6-3. VIDEO SECTION ADJUSTMENT

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 6-64.

Perform the video section adjustment in the sequence as described.

[Adjustment sequence]

- 1) Servo system adjustment
 - 1.SYNC LEVEL/BURST LEVEL adjustment.
 - 2.Switching position adjustment
 - 3. Capstan FG offset adjustment
- 2) Playback frequency response characteristics adjustment
- 3) DEMD OUT adjustment
- 4) YD OUT LEVEL adjustment
- 5) Chroma level check
- 6) PB Y level adjustment
- 7) FE OSC check
- 8) Emphasis input level adjustment
- 9) Y FM deviation adjustment
- 10) Y FM carrier frequency adjustment
- 11) Chroma emphasis fo adjustment
- 12) REC Y level adjustment
- 13) REC L level adjustment
- 14) REC C level adjustment

3-1. PREPARATIONS BEFORE ADJUSTMENT

The following measuring equipment are used for video section adjustment.

3-1-1. Equipment required

- 1) Monitor TV
- Oscilloscope, dual trace, 30 MHz bandwidth or more with delay mode function.

(Use 10:1 probe unless otherwise specified.)

- 3) Frequency counter
- 4) Digital voltmeter
- 5) Audio generator
- 6) Audio level meter
- 7) Audio distortion meter
- 8) Audio attenuator
- 9) Regulated power supply

10) alignment tape

•For tracking adjustment (WR5-1CP)

Parts code: 8-967-995-07

•For normal mode video frequency response adjustment (WR5-6C)

Parts code: 8-967-995-17

•For confirmation of normal mode operation

for SP (WR5-5CSP)

Parts code: 8-967-995-47

or (WR5-4CSP)

Parts code: 8-967-995-46

for LP (WR5-4CL)

Parts code: 8-967-995-56

3-1-2. Precautions on adjustment

The EVF (electronic viewfinder) is not necessary for video section adjustment.

Remove the following connector to remove the EVF.

1. CF-40 board CN481 (pin-8)

The audio board (MA-238) board is not necessary except for "Audio System Adjustments". Remove the following connectors.

1. VC-167P board CN060 (pin-12)

After completing all adjustments, release the adjustment mode by either of the following two methods.

- Remove the lithium battery. (In this case, data time and menu setting by users are erased. Input these data again.)
- 2) Return the data of the address: 00 on page:6 to 00. If the page: 2 data is changed, return the data to the original value.

3-1-3. Adjustment connector (VC-167P Board CN102)

Some video section adjustment points are concentrated to the VC-167P board CN102. Connect the measuring equipment via the tool (Multi CPC: J-6082-311-A).

Pin No.	n No. Signal Name			
1	PB RF			
2	REC 2			
3	GND	_		
4	EMPH IN			
5	CAM Y IN			
6	DEEMPH OUT			
7	BPF ADJ			
8	RF SWP			
9	CAP FG			

3-1-4. Equipment connection

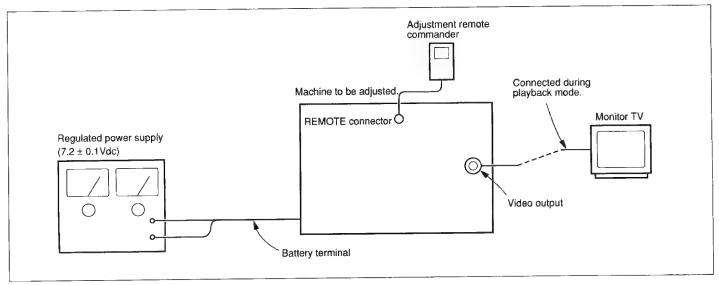


Fig.6-3-1.

3-1-5. Alignment tape

The following table shows the alignment tapes available.

Use the tape specified in the signal column for each adjustment.

If tape type is not specified in the adjustments which use the

"Operation Check" tape, use any type of tape for the checking purpose.

Name	Record Mode	Tape Type	Tape Speed	Use
Tracking	Normal	MP	SP	Tape path adjustment
WR5-1CP				Switching position adjustment
Video frequency response adjustment WR5-6C	Normal	MP	SP	Frequency response adjustment
Operation check (SP mode) WR5-5CSP	Normal	MP	SP	Operation check
Operation check WR5-4CL	Normal	MP	LP	

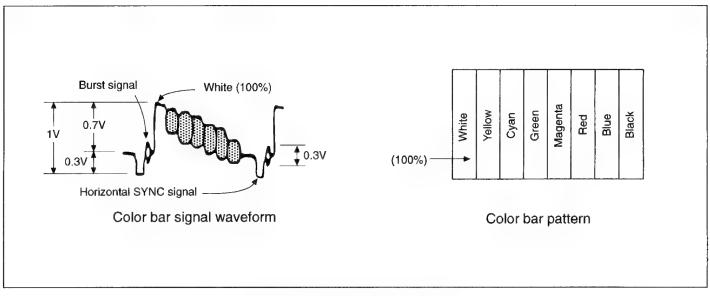
Note: Tape type

MP - Metal particle tape

The color bar signal which is recorded in the alignment tape.

Note: Measured at video input/output connector (across 75 $\boldsymbol{\Omega}$

termination).



Color bar signal of alignment tape

3-1-6. Output level and impedance

Video output Pin jack

Output signal: 1 V p-p, 75 Ω unbalanced,

sync negative

Audio output Pin jack

Input level: -7.5 dBs (across 47 k Ω load))

Output impedance: $2.2 \ k\Omega$ or less

3-2. ADJUSTMENT POINTS WHEN MAJOR PARTS ARE REPLACED

1. When drum is replaced:

"Tape Path Position Adjustment" of mechanical section adjustment

"PB RF frequency response characteristics adjustment" of the video section adjustment

"Switching position adjustment" of the servo section adjustment

3-3. POWER SUPPLY SYSTEM ADJUSTMENT

1. Power supply voltage check (VC-167P board)

		-
Mode	Camera record	
Subject	Any subject	
Measuring Equipment	Digital voltmeter	
MT5V check		
Measuring Point	CN300 pin36	
Specification Value	$5.0 \pm 0.15 \text{Vdc}$	
DIG 3V check		
Measuring Point	CN300 pin30	
Specification Value	$3.16 \pm 0.1 \text{Vde}$	
AU 3 V check		
Measuring Point	CN501 pin⑤	
Specification Value	$3.18 \pm 0.1 \text{Vdc}$	
EVF 5V check (camera n	node)	
Measuring Point	CN300 pin(1)	
Specification Value	$4.85 \pm 0.15 \text{Vdc}$	
EVF15 V check		
Measuring Point	CN300 pin40	
Specification Value	$14.95 \pm 0.4 \text{Vdc}$	

2. VTR & CAM mode ON

Mode	Stop	
Signal	Any signal	
Adjustment Page	F	
Adjustment Address	02	

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Set the remote commander (RM-95) to HOLD (adjustment position), and turn on the
				UNREG power supply.
2	6	00	01	After setting the data, press the PAUSE button. (Preparation)
3	F	02	03	After setting the data, press the PAUSE button.
4				Turn off the UNREG power supply once, then turn it on.

How to cancel the VTR &CAM mode ON.

Order	Page	Address	Data	Procedure	7
1	6	00	01	After setting the data, press the PAUSE button.	-
2	F	02	00	After setting the data, press the PAUSE button.	1
3				Turn off the UNREG power supply once, then turn it on.	

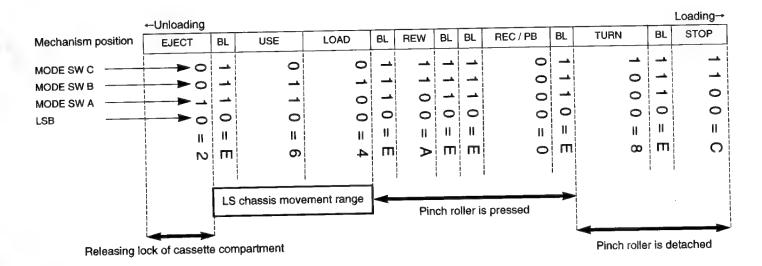
3. EMG code (Emergency code)

The emergency codes are stored in the addresses: E4, E8 and EC corresponding to the type of errors occurred. Types of error code are shown in the following table.

Code	Error Status				
00	No error				
10	Loading motor error during loading				
11	Loading motor error during unloading				
20	T reel error during unloading				
21	S reel error during unloading				
22	T reel error in normal mode				
23	S reel error in normal mode				
30	FG error during capstan startup				
31	FG error during capstan normal speed				
40	FG error during drum startup				
41	FG error during drum startup				
42	FG error during normal rotation of drum				
43	Not used				
44	Phase error during normal rotation of drum				

4. MSW code

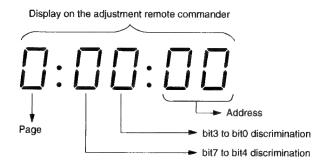
- The lower digit data of the page F: address: E6, EA and EE indicate the MSW code (mode switch code) when an error occurs.
- The upper digit data of the page F: address: E6, EA and EE indicate the MSW code (mode switch code) of mode transition (mode SW code before mode transition) when an error occurs.
- The lower digit data of the page F: address: E7, EB and EF indicate the MSW code (mode switch code) of transition target (code to which the machine is going to enter) when an error occurs.



Mechanism	MSW	Detail of Content
Position	Code	
EJECT	2	The position where the cassette compartment lock is released. The end
		position in the unthread-end direction. The mechanism does not move
		any more in the direction of unloading direction.
BL	Е	Blank code. The code which separates a code from another code.
		The machine does not stop at the code while is it operating.
USE	6	EJECT completed position.
		If a cassette is ejected, it stops at this position.
		If mechanism moves in the loading direction, the TG1 guide and the
		TG9 guide start moving.
LOAD	4	The code during loading and unloading. This code is output while the
		LS chassis is moving.
REW	Α	REW position.
		The position to activate the REW and FR/REV.
RP	0	PB, REC, CUE REV and PAUSE position.
		The pinch roller is pressed and the tension regulator is turned ON.
TURN	8	The position which is used to move the swing gear from S to T or from
		T to S.Normal STOP position.
STOP	С	The pinch roller is detached, tension regulator is turned OFF, and both
		reels are braked.
		Mechanism does not move any more in the loading direction.

5. Bit value discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Us the table below to discriminate if the bit value is "1" or "0".



(Example) If the remote commander display is "8E", bit value from bit 7 to bit 4 can be discriminated from the column (A), and those from bit 3 to bit 0 from column (B).

Display on the	Bit value					
Adjustment	bit3	bit2	bit1	bit0		
Remote	or	or	or	or		
Commander	bit7	bit6	bit5	bit4		
0	0	0	0	0		
1	0	0	0	1		
2	0	0	1	0		
3	0	0	1	1		
4	0	1	0	0		
5	0	1	0	1		
6	0	1	1	0		
7	0	1	1	1		
8	1	0	0	0		
9	1	0	0	1		
A(A)	1	0	1	0		
В(Ь)	1	0	1	1		
C([)	1	1	0	0		
D(d)	1	1	0	1		
E(E)	1	1	1	0		
F(F)	1	1	1	1		

 $^{\circ}$

(A)

6-40

6. Initializing the emergency code area

(Caution) Perform the initializing operation only when the past emergency codes can be deleted.

	procedure		Data	Procedure
Order	Order Page Address	Data		
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2		11	00	After setting the data, press the PAUSE button.
3	6	01	4D	After setting the data, press the PAUSE button.
1	6	11	01	After setting the data, press the PAUSE button.
4	F	F4~EF	00	After setting the data, press the PAUSE button.
3	<u> </u>	01	00	After setting the data, press the PAUSE button.
6	6	00		After setting the data, press the PAUSE button. (End)

7. LED check

Data	Operation
00	Normal
10	Tally LED lights.

Operating procedure:

Operating	procedure:				
Order Pag	Page	Address	Date	Procedure	
1	1 4 9 4			Turn CAM POWER ON.	
2				Check LED.	
3	2	00	00	After setting the data, press the PAUSE button.	
4	2	A0	10	Tally LED light.	

8. Key input check

Bit	Key Switch	Switch Condition				
0	Date (+)					
1	Time					
2	Cassette eject	<i>(1.1)</i>				
3	Video power supply	"1" =OFF "0" =ON				
4	CC DOWN "0" =O					
5	Start/Stop					
6	Camera power supply	**				

Operating procedure:

Order	Page	Address	Data	Procedure
1	2	00	3F	After setting the data, press the PAUSE button.
2	2	01		ON/OFF of each key switch can be known by
				discriminating the bit value of each display data.

9. Key input check (A/D port)

• VC-167P board

Display data Address	00~20	00~20 21~60 61~A0		A1~E0	E1~FF
2E (KEY AD0: IC303 ②)	• STOP (S307)	• REW (\$305)	• FF (S306)	• PAUSE (\$304)	No key input
2F (KEY AD1: IC303 3	• PB (\$303)	• EDIT SEARCH (-) (\$302)	• EDIT SEARCH (+) (S301)		No key input
30 (KEY AD2: IC303 84)	COUNTER RESET (CF-40 board \$482)	TITLE (CF-40 board S301)			No key input
31 (S/S MODE SW: IC303 85)	START/S 5 SEC REC	TOP MODE (CF-40	D BOARD : S485)		NORMAL
32 (PROGRAM AE: IC303 ® 6)	PROGRA AE PORTRAIT	M AE (CF-40 BOA AE SPORT	RD : S489) AE SHUTTER	AE TWILIGHT	No key input

Operating procedure:

Operating	procedure:			5 Landova
Order	Page	Address	Data	Procedure
1	2	00	01	After setting the data, press the PAUSE button.
2	2	2E~32		From the display data of each address,
2	2	20 32		
2	2	ZE ~32		it can be known which key is being pressed.

10.Individual operation of drum, capstan and loading motor

Data	Operation
00	Normal
02	Drum rotation in normal direction
06	Capstan rotation in normal direction
08	Capstan rotation in reverse direction
0A	Loading motor rotation in normal direction
0C	Loading motor rotation in reverse direction
01	
03	
05	
07	All motors stop.
09	
OB	
0D	
0F	

Operating procedure:			Dragoduro
Page Address		Data	Procedure
7	00	02	After setting the data, press the PAUSE button.
7	OF	01	Individual operation of motors is approved.
	11		Motor can be operated individually
7	11		by setting the above described data.
	-		Turn the main power (7.2 V) OFF.
	Page 7 7 7		7 00 02

3-4. SERVO SYSTEM ADJUSTMENTS

1. SYNC level and BURST level adjustments

Purpose: Adjust the sync and burst level of the camera

output to the specified values.

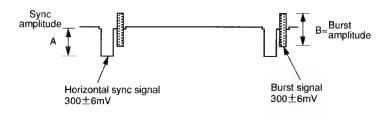
Adjustment error: The playback machine can lose lock of the

servo systems if the sync level is too low. The playback color will become too thick if

the burst level is low.

Mode	Camera record
Subject	Color bar chart: standard picture
	frame
Measurement point	VIDEO output terminal
	(terminated in 75Ω)
Measuring equipment	Oscilloscope
Adjustment page	F
Adjustment address	28 (SYNC LEVEL)
	29 (BURST LEVEL)
Specifications	$A = 300 \pm 6 \text{ mV}$
	(SYNC LEVEL)
	$B = 300 \pm 6 \text{ mV}$
	(BURST LEVEL)

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	03	After setting the data, press the PAUSE button.
3	F	28		Change the data using the PLAY and STOP buttons until the SYNC LEVEL (A) satisfies the specification.
4				Press the PAUSE button.
5	F	29		Change the data using the PLAY and STOP buttons until the BURST LEVEL (B) satisfies the specification.
6				Press the PAUSE button.
7	6	01	00	After setting the data, press the PAUSE button.
8	6	00	00	After setting the data, press the PAUSE button. (End)



2. Switching position adjustment

Purpose:

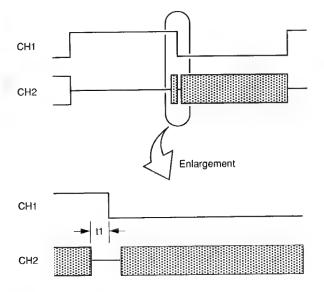
Removes vertical mechanical error of head

assembling.

Adjustment error: Skew picture.

Mode	Playback
Signal	Alignment tape: For adjustment
	tracking (WR5-1CP)
Measurement Point	CH1: ® of CN102 (RF SWP)
	CH2: ① of CN102 (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	0A
	0B
Specification Value	$t1 = 0 \pm 10 \ \mu \text{ sec}$

Order	Page	Address	Data	Procedure	
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)	
2	F	OB	80	Initial setting.	
3	F	OB		Change the data with the PLAY and STOP buttons, and minimize t1.	
4				Press the PAUSE button.	
5	F	0A		Change the data with the PLAY and STOP buttons, and minimize t1.	
6				Press the PAUSE button.	
7				Check that tl satisfies the specified value.	
				If not, repeat steps 3 to 6 in order.	
8	6	00	00	After setting the data, press the PAUSE button. (End)	



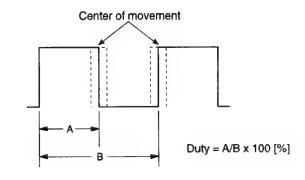
3. Capstan FG offset adjustment

Purpose:

Adjusts duty ratio of capstan FG signal

Adjustment error: Jitter can increase.

Mode	CAM-REC (SP)
Signal	Any signal
Measurement Point	CN102 pin®
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	12
Specification Value	Duty = $50 \pm 1.5\%$



Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	12	80	After setting the data, press the PAUSE button.
3	F	12		Change data using PLAY and STOP buttons so that the duty ratio A/B satisfies
				the specification.
4				Press the PAUSE button.
5	6	00	00	After setting the data, press the PAUSE button. (End)

3-5. PLAYBACK FREQUENCY RESPONSE CHARACTERISTICS ADJUSTMENT

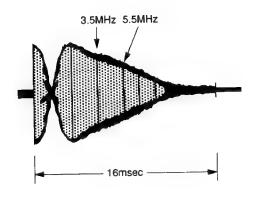
Purpose: Remove variation of picture quality between

heads due to difference of characteristics.

Adjustment error: Flicker or over-modulation of playback

picture.

Mode	Playback
Signal	Alignment tape: Normal mode frequency response characteristics adjustment (WR5-6C)
Measurement Point	Check connector (CH1: CN102 pin(1) (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	22 23
Specification Value	3.5 MHz level : 5.5 MHz level = $4: (3.0 \pm 0.2)$



Adjustmei	nt procedu	ire:		
Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	22		Change data using PLAY and STOP buttons to adjust the level ration between 3.5 MHz
4			Ì	level and 5.5 MHz level of the PB RF waveform of channel "1a" satisfies the
				specification. Press the PAUSE button. Playback mode.
3	F	23		Adjust the channel "2a" in the same way (address 23). Press the PAUSE button. Playback
				mode.
4	6	00	00	After setting the data, press the PAUSE button. (End)
-	1 ~		1	

3-6. DEMD OUT LEVEL ADJUSTMENT

Purpose: The playback video level is kept to constant

level.

Adjustment error: The playback picture can be brighter or

darker than normal picture.

Mode	Playback
Signal	Alignment tape: Normal mode
	(WR5-5CSP)
Measurement Point	IC201 pin@ or CN102 pin6
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	1D
Specification Value	A=0.50±0.01Vp-p

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	1D		Change data using PLAY and STOP buttons so that the Y signal level (A) satisfies the specification.
3				Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

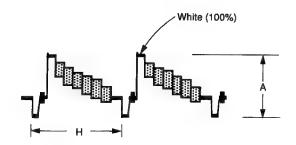


Fig. 6-3-1

3-7. YD OUT LEVEL ADJUSTMENT

Purpose: Minimizes the residual chroma component of

Y comb filter output signal.

Adjustment error: Chroma flicker at video out (pin jack) of

VTR overall characteristics. Color variations

also significant.

Mode	Playback
Signal	Alignment tape: Normal mode
	(WR5-5CSP)
Measurement Point	CN102 pin⑤
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	24
Specification Value	A=0.50±0.01Vp-p

Note: Minimize the residual chroma to the smallest amplitude

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button.
1				(Preparation)
2	F	24		Change data using PLAY and STOP buttons so that the
3				Y signal level (A) satisfies the specification.
4				Press the PAUSE button.
5	1	00	00	After setting the data, press the PAUSE button. (End)

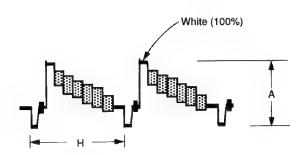


Fig. 6-3-2

Related Adjustments:

"Emphasis input level adjustment", "PB Y level adjustment", "Y

FM carrier frequency adjustment"

3-8. PB CHROMA LEVEL CHECK

Purpose: The playback chroma level is kept to

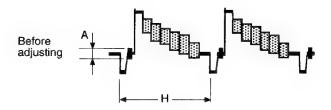
constant level.

Adjustment error: Color of playback picture can be thinner or

thicker than normal picture.

Mode	Playback
Signal	Alignment tape: color bar segment of operation check tape • Normal mode WR5-5CSP
Measurement Point	CN102 pin⑥
Measuring Instrument	Oscilloscope
Adjustment Page	
Adjustment Address	
Specification Value	A=150±15mVp-p
	(BURST LEVEL)

Order	Page	Address	Data	Procedure
1				Playback the color bar segment of the normal mode
i				alignment tape (WR5-5CSP).
2				Check that the burst signal level satisfies the
				specification.



3-9. PB Y OUT LEVEL ADJUSTMENT

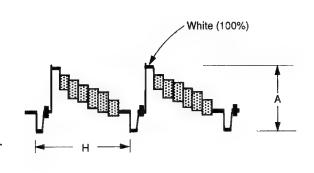
Purpose: Adjusts playback video level for the

specification value.

Adjustment error: Playback picture can be too brighter or too

darker than normal picture.

Mode	Playback
Signal	Alignment tape: color bar segment of operation check tape • Normal mode WR5-5CSP
Measurement Point	VIDEO output terminal (terminated in 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	1B
Specification Value	$A=1.00\pm0.05Vp-p$



Aujustmen	it procedui	e:		
Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2				Playback the color bar segment of the normal alignment tape (WR5-5CSP playback)
3	F	1 B	- 1.17	Change data using PLAY and STOP buttons so that the playback signal level (A) satisfies
				the specification.
4				Press the PAUSE button.
5	6	00	00	After setting the data, press the PAUSE button. (End)

3-10. FE OSC CHECK

Purpose:

Check the oscillating frequency and level of

the flying erase (FE) signal.

Adjustment error: If REC-PAUSE recording is repeated, un-

erased area is left in the junctions between the editings which results in increase of noise

or previous picture can be seen.

Mode	CAM-REC
Signal	Any signal
Measurement Point	CN101 pin ①
Measuring Instrument	Oscilloscope and frequency counter
Adjustment Page	
Adjustment Address	
Specification Value	A=7.0Vp-p or more (MP mode) f=7.2±0.5MHz (MP mode)

Order	Page	Address	Data	Procedure	
1				Insert a normal MP type tape.	
2				Make a recording.	
3				Check that the FE signal level satisfies the specification.	
4				Check that the FE signal frequency satisfies the specification.	



f=7.2±0.5MHz

3-11. EMPHASIS INPUT LEVEL ADJUSTMENT

Purpose: Adjusts the record emphasis characteristics

to the specification value.

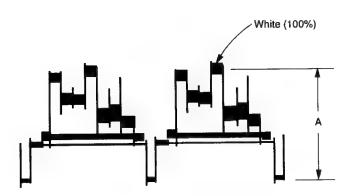
Adjustment error: Luminance signal smear, blurred picture, too

much emphasized edge of overall video

characteristics.

Citatac			
Mode	CAM-REC		
Signal	Color bar chart		
Measurement Point	- CN102 PIN4		
	 VIDEO output terminal 		
	(terminated in 75Ω)		
Measuring Instrument	Oscilloscope		
Adjustment Page	F		
Adjustment Address	1A		
Specification Value	$A=(Vo\times0.96\times500) \text{ mVp-p}\pm$		
	2%		

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button.
				(Preparation)
2	6	01	47	After setting the data, press the PAUSE button.
3				Measure amplitude of the VIDEO OUT. The measured
				value is "Vo"[V].
4	F	1A		Change data using PLAY and STOP buttons so that the
				Y signal level at CN102 pin(4) (A) satisfies the
				specification.
5				Press the PAUSE button.
6	6	01	00	After setting the data, press the PAUSE button.
7	6	00	00	After setting the data, press the PAUSE button. (End)



3-12. Y FM DEVIATION ADJUSTMENT (NOTE)

Purpose: Adjusts the FM signal to be recorded on tape

to the 8 mm format. (Adjusts the frequency

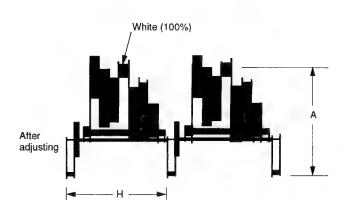
deviation of normal mode Y FM signal.)

Adjustment error: Too bright or too dark overall picture.

Overmodulation picture. (If deviation is too

wide, or too narrow.)

Mode	CAM-REC and playback
Signal	Color bar chart
Measurement Point	· CN102 pin②
	· VIDEO output terminal
	(terminated in 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	17
Specification Value	$A=(Vo\times0.96)Vp-p\pm2\%$



Related Adjustments:

"Normal mode Y FM deviation adjustment"

Note: The "Emphasis input level adjustment", "PB Y level adjustment", must have already been completed.

Order	Page	Address	Data	Procedure
1				Insert a normal MP type tape.
2	6	00	01	After setting the data, press the PAUSE button.
				(Preparation)
3	6	01	47	After setting the data, press the PAUSE button.
4				Shoot and record the color bar chart. The video out
				level at that setup is "Vo".
5				Playback the recorded signal.
6				Compare the playback signal level (A) with the
				specification value. If the specification value is
				satisfied, the adjustment is complete.
7	F	17		If the specification value is satisfied, change data using
				PLAY and STOP buttons.
				If the playback signal level is bigger than the
				specification value, decrease the data.
				If the playback signal level is smaller than the
]		specification value, increase the data.
8				Press the PAUSE button.
9				Return to step 4.
10	6	01	00	After setting the data, press the PAUSE button.
11	6	00	00	After setting the data, press the PAUSE button. (End)

3-13. Y FM CARRIER FREQUENCY ADJUSTMENT

Purpose: Adjusts the FM signal to be recorded on tape

to the 8 mm format. (Adjusts the carrier frequency of normal mode Y FM signal.)

Adjustment error: (If frequency is low) Overall picture will be

blurred signal. (If frequency is high) Overall picture will have black streaking noise.

S/N will be deteriorated.

Mode	CAM-REC
Signal	Any signal
Measurement Point	IC201 pin@
Measuring Instrument	Frequency counter, Oscilloscope
Adjustment Page	F
Adjustment Address	19
Specification Value	4.20±0.01MHz

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	43	After setting the data, press the PAUSE button.
3	F	19		Change data using PLAY and STOP buttons so that the Y signal level (A) satisfies the specification. (Record mode)
4				Press the PAUSE button.
5	6	01	00	After setting the data, press the PAUSE button.
6	6	00	00	After setting the data, press the PAUSE button. (End)



3-14. CHROMA EMPHASIS fo ADJUSTMENT

Purpose: Adjust fo of the chroma emphasis to the

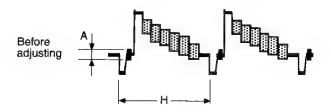
specified frequency range.

Adjustment error: The bust and chroma level becomes too big

during playback.

Mode	Playback		
Signal	Color bar signal (WR5-5CSP)		
Measurement Point	· VIDEO output terminal (terminated in 75Ω)		
Measuring Instrument	Oscilloscope		
Adjustment Page	F		
Adjustment Address	1E		
Specification Value	Minimizes the chroma component (A in the following diagram)		

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button.
1				(Preparation)
2	F	1E		Change data so that the chroma component (A) is
2				minimized.
3				Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)



REC Y LEVEL ADJUSTMENT 3-15.

Purpose:

Maintains a constant level of Y FM, chroma

AFM and ATF signals when recording on

tape.

Adjustment error: (If level is low) Poor S/N of playback picture

(If level is high) Black streaking noise

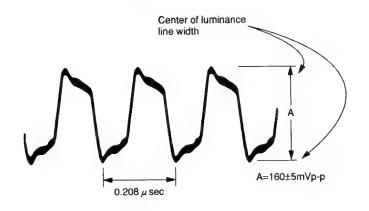
appears.

Connection:

Connect CN102 pin® (RF SWP) to GND.

Mode	CAM-REC (SP)
Signal	No signal
Measurement Point	CN102 pin2 (check connector)
Measuring Instrument	Oscilloscope (Note)
Adjustment Page	F
Adjustment Address	1F
Specification Value	A=160±5mVp-p

Use the MP type tape. If an oscilloscope has the Note: bandwidth limiting switch, set to on position.



Aujustinei	it procedui	C.		
Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2				Insert the MP tape to establish record mode.
3	6	01	43	After setting the data, press the PAUSE button.
4	F	1F	V.,	Change data using PLAY and STOP buttons so that the REC Y RF level (A) satisfies the specification.
5				Press the PAUSE button.
6	6	01	00	After setting the data, press the PAUSE button.
7	6	00	00	After setting the data, press the PAUSE button. (End)
	•	1		

3-16. REC L LEVEL ADJUSTMENT

Purpose: Maintains a constant level of chroma, AFM

and ATF signals when recording on tape.

Adjustment error: If level is low, audio distortion increases,

ATF servo loses lock, and chroma S/N

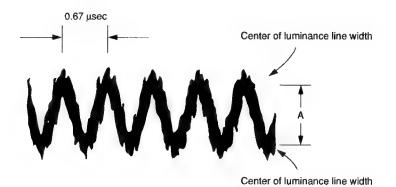
deteriorates.

If level is high, Y S/N deteriorates and white

streaking noise appears.

Mode	CAM-REC (SP)
	` ` · · · · · · · · · · · · · · · · · ·
Signal	No signal
Measurement Point	CN102 pin 2 (check connector)
Measuring Instrument	Oscilloscope
	Frequency bandwidth limitation:
	20 MHz OFF
Adjustment Page	F
Adjustment Address	21
Specification Value	A=8.494±0.3mV (AFM Level)

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button.
•		i		(Preparation)
2	6	01	43	After setting the data, press the PAUSE button.
3	F	21		Change data using PLAY and STOP buttons so that the
				AFM signal level (A) satisfies the specification.
4				Press the PAUSE button.
5	6	01	00	After setting the data, press the PAUSE button.
6	6	00	00	After setting the data, press the PAUSE button. (End)



3-17. REC C LEVEL ADJUSTMENT

Purpose: Maintains a constant chroma level when

recording on tape.

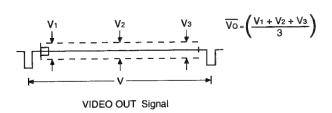
Adjustment error: If level is low, overall S/N deteriorates.

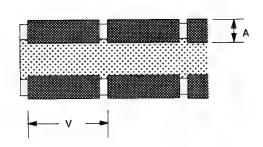
If level is high, S/N of Y signal at deep colo deteriorates and white streaking noise

appears.

mp p + m	
Mode	CAM-REC
Signal	White pattern (See page 6-2)
Measurement Point	· CN102 pin②
	(Check connector)
	· VIDEO output terminal
	(terminated in 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	20
Specification Value	$A = \left(28.5 \times \frac{\nabla_{0}}{700}\right) \text{mVp-p} \pm 2\text{mVp-p}$

Order	Page	Address	Data	Procedure
1				Shoot the all white pattern to the full picture frame.
2	6	00	01	After setting the data, press the PAUSE button. (Preparation)
3	6	01	45	After setting the data, press the PAUSE button.
4				Measure the chroma output level of the VIDEO OUT connector. Obtain the average
				value of three points (beginning, middle, end) of a vertical period. Call the average
				value Vo (mV).
5	F	20		Change data using PLAY and STOP buttons so that the REC signal at CN102 pin2
				amplitude (A) satisfies the specification.
6				Press the PAUSE button.
7	6	01	00	After setting the data, press the PAUSE button.
8	6	00	00	After setting the data, press the PAUSE button. (End)





6-4. AUDIO SYSTEM ADJUSTMENT

- Use the alignment tape (WR5-5CSP) for audio system adjustment.
- Connect an audio input signal from VC-167P board CN501 as shown in Fig.6-4-1.

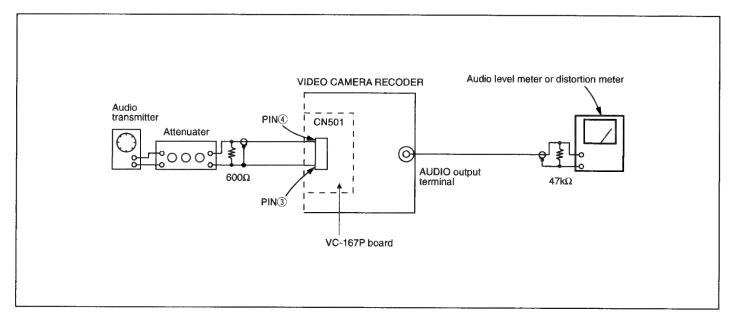


Fig.6-4-1

4-1. EE-OUTPUT LEVEL CHECK

Mode	Record
signal	CN501 PIN 4 INPUT
	400 Hz, -38 dBs
	Audio input from CN501 pin4
Measurement Point	AUDIO output terminal
	(no load)
Measuring Instrument	Audio level meter
Specification Value	$-7.5 \pm 2.0 \mathrm{dBs}$

Check procedure

Order	Procedure
1	Check that 400 Hz signal level satisfies the
	specification.

4-2. 1.5MHz DEVIATION ADJUSTMENT

Purpose:

1.5MHz deviation adjustment. Error in this adjustment value means loss of tape inter

change ability.

Mode	Playback
Signal	Alignment tape : For checking operations (WR5-5CSP)
Measurement	AUDIO output terminal.
Measuring Instrument	Oscilloscope, level meter
Adjustment Page	F
Adjustment Address	13
Specified Value	−7.5±0.5dBs

Adjustment method:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	13		Change the data with the PLAY and STOP buttons, and adjust the 400Hz signal level to specified value.
3				Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

4-3. BPF fo ADJUSTMENT

Purpose:

Optimizes fo of BPF inside IC.

Adjustment error: Incorrect discrimination of monaural/stereo

and increase of noise at high output of audio

volume are resulted.

Mode	Playback
Signal	Alignment tape:(WR5-5CSP)
Measurement Point	AUDIO output terminal
Measuring Instrument	Distortion meter
Adjustment Page	F
Adjustment Address	15
Specification Value	Distortion: 1% or less.

Adjustment procedure:

Aujustinen	t procedur	C.		
Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2				Playback the 400 Hz segment of the WR5-5CSP alignment tape.
3	F	15		Change data using PLAY and STOP buttons so that distortion factor is minimized.
4				Press the PAUSE button.
5	6	00	00	After setting the data, press the PAUSE button. (End)

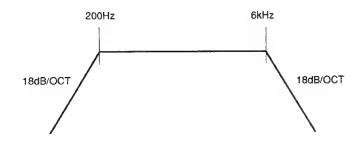
4-4. OVERALL SIGNAL LEVEL AND DISTORTION CHECK

Purpose:

Checks distortion level.

Mode	CAM-REC and playback		
Signal	400 Hz, -38 dBs:		
Measurement Point	AUDIO output terminal		
Measuring Instrument	Audio level meter and distormeter		
Specification Value	Level: Distortion (Note)	-7.5 ± 2.0 dBs 0.8% or less	

Note: The value when band-pass filter of 200 Hz to 6 kHz is used.



Check procedure:

Order	Procedure
1	Input 400 Hz, -38 dBs signal to, CN501 pin 4.
2	Record the signal. (CAM-REC)
3	Remove the input signal and playback the recorded segment.
4	Confirm that 400 Hz signal level at audio output terminal is -7.5 ±2 dBs and distortion is 0.8% or less. (Note)

4-5. OVERALL NOISE LEVEL CHECK

Purpose:

Checks noise level.

Mode	CAM-REC and playback
Signal	No signal: VC-167P board
	CN501 (Note)
Measurement Point	AUDIO output terminal
Measuring Instrument	Audio level meter (using IHF-A curve weighting filter)
Specification Value	-65 dBs or less

Note: 1

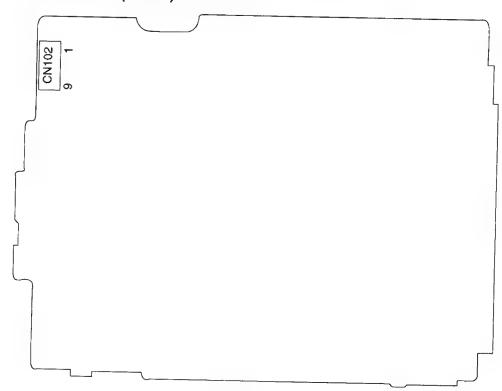
Before making short circuit between CN501 pins 3 and

4, remove the flexible board from CN501

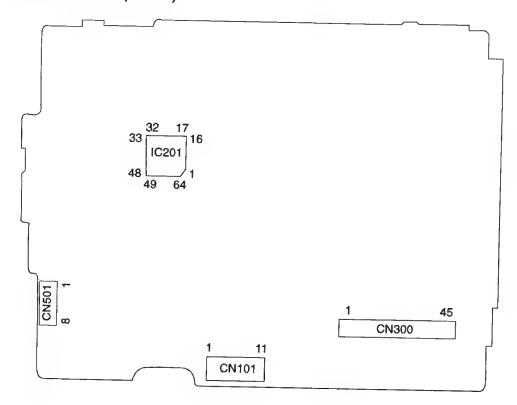
Check procedure:

Order	Procedure
1	Insert a shorting to pin 3 and pin 4 as CN501.
	Make recording.
2	Remove the shorting plug.
3	Playback the recorded segment.
4	Confirm that the noise level at audio input terminal
5	is -65 dBs or less.

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS VC-167P BOARD (SIDE A)

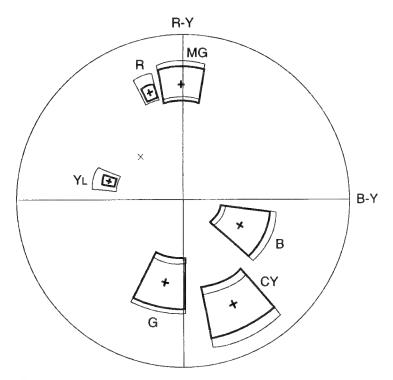


VC-167P BOARD (SIDE B)



FOR CAMERA COLOR REPRODUCTION ADJUSTMENT (CCD-TR330E MODEL)

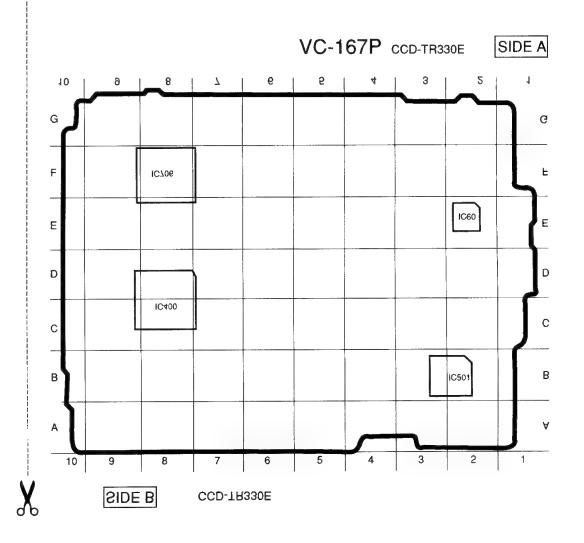
Take a copy of CAMERA COLOR REPRODUCTION FRAME and Parts reference sheets with a clear sheet for use. : WEIGHT OFF MODE : WEIGHT ON MODE



CCD-TR330E

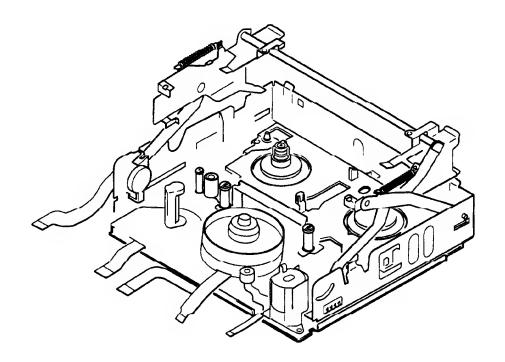
⟨PARTS REFERENCE SHEET⟩

You can find the parts position of mount locations applying to VC-167P board of a set



Video8

B-mechanism know-how



8 MECHANISM DECK

SONY®

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Table of B-mechanism know-how

		5/1/2			Rejst).
	Tape not wound. (Deformation of gooseneck) (retainer.	T-reel is pressed by deformation of gooseneck retainer.	Gooseffeck retainer was deformed due to change in environment.	Replace with new part Former 3-965-584-01 part New part Gooseneck retainer (2) 3-989-479-01	P.12 - P.15
2	Tape not wound. (Inclination of TG4)	TG4 arm was inclined, causing loading/unloading failure tape jamming, etc.	TG4 arm was inclined when user removed jammed tape and it was caught in TG4.	Replace with TG4 arm made of high-strength material (SUS). TG4 arm ass'y A-7040-417-A	P.16, P17
3	No eject. (Trouble with M slider at) unloading.	The edge at the end of M slider is caught in the caulked guide arm S.	The face "c" of the edge at the end of M slider is small.	Replace M slider. • Repair M slider.	P.18
4	Video recording guide tape not wound.	Tape is not wound in FWD mode. (This trouble occurs in video recording guide tape.	Flatness of video recording guide tape cassette is NG. The height of reel is low at cassette DOWN.	Video recording guide tape is defective. Replace video recording guide tape. (Improved tape is available from our stock.) Check to see if the chassis is deformed or T reel shaft is tilted.	P.19
5	Trouble with guide base S at unloading.	The V-shaped guide base is caught in the corner of drum base at unloading.	Insufficient margin.	 Replace guide base S ass'y. Replace drum base ass'y. Repair the corner of drum base. Change the V shaped guide base to straight type. 	P.20
6	Trouble with M slider at loading.	The corner of M slider is caught in the hole of LS chassis at loading.	Inclination of M slider due to MD frame dab getting on the slider.	Replace M slider ass'y. • Change the shape of the corner of M slider.	P.21
7	No unloading. (Trouble with T ratchet)	T ratchet pin rides over M slider and is not reset, causing failure in operation of T latchet and generating unusual noise.	T ratchet was tilted and pin was loosened due to clearance between T ratchet shaft and the hole of LS chassis.	Replace with new part. (T ratchet) Former part 3-965-581-01 New part 3-965-581-03	P.22
8	Tape not wound. (Tape slack, T reel caution)	Tape is not wound on T reel, causing caution and tape jamming.	Gooseneck retainer interferes with T reel base due to deformation of gooseneck retainer. Increase in loss torque of T reel base and reel shaft. Insufficient margin of T reel height.	Introduction of gooseneck retainer (2) (Prevention of interference with T reel. (Improved gooseneck retainer on T reel side has been made larger. Gooseneck retainer (2) 3-989-479-01	P.24, P25
9	Threading is not completed.	The tip of guide base T touches the entrance corner of V-shaped drum basc, and threading is not completed.	Drum base touches guide base T.	Replace drum base ass'y.	P.26

	Transformer.				
10	Trouble with guide base S at loading.	The tip of guide base is caught in the rib of drum base at loading, causing loading failure.	Insufficient margin.	 Replace guide base S ass'y. Replace drum base ass'y Change the shape of tip of guide base. Use additional drum base rib. 	P.27
11	No loading (Tape guide not moving out)	Stopper is not released and guide does not move out at loading.	Insufficient amount of stopper release. (Small design margin)	Replace drum base ass'y. Change the size of stopper release unit of drum base to increase the amount of release.	P 28
12	Tape not wound. (Separation of LS guide roller)	Tape is not wound due to failure of loading/unloading operation or floating of cassette by separation of LS guide roller.	The size of the step of inside diameter of LS guide rofler is not correct.	Replace LS guide roller. (New part is available from our stock. • Repair LS guide roller. (Note) Do not use the dismounted roller	P.29
13	Trouble with EJ arm.	C-IN (C.C. LOCK) SW is ON at all times due to deformation of EJ arm spring.		Replace EJ arm. • Change the shape of EJ arm. (Cut the boss being caught in LS chassis.	P.30
14	Tape is not set in position and cannot be loaded. (Trouble with pinch arm)	The tip of pinch arm gets over the wall of guide base and is not operating.	Insufficient margin of pinch arm and the height of guide base wall.	Replace with improved part. Former part A-7040-418-A New part A-7040-418-B	P.31
15	T soft brake not working, trouble with loading/unloading. (Damage to T soft pawl)	The shaft at tip of T soft claw was caught in the bent portion of M slider and the pawl was damaged.	Insufficient margin for variations of bending position of M slider.	Replace M slider. • Correct the bending position of M slider.	P.32
16	Trouble with M slider at loading. (Small torque of T soft brake	The tip of T soft claw interferes with the corner outside M slider.	Insufficient margin of T soft claw and the height of M slider.	Replace M slider. • Repair the shape of M slider.	P.33
17	"No cassette" displayed at cassette IN.	C-IN (C.C. LOCK) SW is sometime OFF during operation due to stress.	SW ON point specification differs from MD standards.	Replace part 1-572-680-11	P.34
18	Damage to tape due to slack in T side tape. (Separation of T soft gear spring	Spring was separated in the market due to improper fit of spring hook.	Spring hook on LS chassis is in the shape of causing improper fit.	Mount the spring hook correctly. • Use spring push-in jig. • Change the shape of spring hook on LS chassis to prevent improper fit.	P.36, I
19	Tape not ejected. (Capstan motor not rotating)	Damage to driver due to over-current.	Damage due to over-current	Replace capstan motor.	P.3

staC croset aut	Trouble	Symptome U	Chundrolo	72 Remails Off	Detail descrip- tion
<u>20</u>	Swinging of camera picture	Camera picture swings during drum rotation. * This can be easily checked in ZOOM mode.	Shaft earth vibration interferes with the oscillation frequency of angular velocity sensor, causing failure in operation of steady shot prevention.	 Apply grease on shaft earth contact. Replace shaft earth with improved part. Former part 3-965-525-01 Now part 3 965 525 03 	P.39
21	Separation of reel table magnet. (Caution)	Pressure of reel table magnet seat is insufficient, causing separation of the magnet and resulting in caution.	Insufficient pressure by jig.	Replace reel table. • Reel table in our stock has no problems.	P.40
22	Gooseneck gear not working.	Gooseneck gear is caught between LS chassis and gooseneck retainer, causing failure in operation of gooseneck gear.	Insufficient margin of the thickness of gooseneck gear for the warp of gooseneck retainer and the clearance between LS chassis and gooseneck retainer.	Replace gooseneck gear ass'y. Change the thickness of gooseneck gear from 1.95 to 1.80.	P.41
23	Separation of capstan motor flexible cable.	Capstan motor flexible cable is floating and touches rotor, causing unusual noise and incorrect rotation (jitter, no tape winding, etc.).	Decrease in adhesive force of flexible cable due to contamination of capstan stator with oil.	Rubber spacer Part Code 3-987-953 02 Clean with alcohol. Attach rubber spacer to capstan motor to prevent it from floating.	P.42
24	Tape wrinkle, tape damage. (Trouble with capstan motor flexible cable	Flexible cable fitted between its holder and capstan stator comes off the position, causing change in capstan azimuth and tape jamming due to damage to capstan shaft.	The folded portion of capstan motor is caught at the time of assembling flexible cable retainer.	Repair to prevent flexible cable from being caught. Change the shape of the holder of flexible cable to eliminate overlap of flexible cable retainer and capstan motor flexible cable.	P.43
25	railure in loading/unloading operation due to inclination of LS arm.	LS arm pin is bent due to dropping.	Strength of the root of pin is insufficient for dropping.	Replace with part. 3-965-532-21	P.44
26	V sync failure	Entrance contact of head projection is small, causing V sync failure.	Amount of head projection is small.	Replace drum ass'y. • Change the amount of head projection.	P.45
27	Noise in LP playback picture	Small output from one CH due to difference in output from CH1/CH2.	Clearance between drum shaft and bearing is large, causing the bearing to be out of position. (Difference in height of CH1/CH2 head	Replace drum ass'y. • Change shaft and bearing, from insertion type to press in type.	P.46
28	Damage to FP249 flexible cable	FP249 flexible cable is damaged, causing tape caution and failure of cassette IN SW ON.	Flexible cable was damaged by lock plate due to over stroke when cassette compartment is locked.	 Increase the adhesive strength of flexible cable. Prevention of corner from floating. Change the arrangement of flexible cable pattern. (Keep lock plate away from pattern) Change the shape of tip of lock plate. Replace LS chassis (S1) ass'y. A7040-427-A Replace cassette compartment ass'y. X-3945-400-1 	P.47

10 94 21 13 89 20 34	Trouble ***	Symptone ⁽⁴⁾	Cenedian	mys Remotyles T	Detail descrip- tion
29	Short-circuit between slits of loading motor.	Loading motor is not rotating. (Blown SET fuse)	Short-circuit between slits by metallic powder from worn commutator.	Replace part. (Replace loading motor)	P.48
30	Deposit of foreign objects on capstan motor rotor.	Foreign objects entered between CAP rotor and MR element, causing failure of running or runaway (caution) due to damage to MR element.	Entry of foreign objects into capstan rotor.	Clean capstan motor and MR element. • When MR element is damaged, replace it together with capstan motor.	P.49
31	Separation of guide base.	Guide arm is loosened from stopper at EJECT and guide is separated from guide arm.	Stopper was deformed at the time of assembling.	Add a dowel to the S side stopper so that it can be forcedly positioned. Replace part. (Stopper S)	P.50
32	Tape wrinkle. (Due to incorrect adjustment of height of TG4	Tape is wrinkled at the time of reverse mode (from PB mode to REV mode).	Tape is loosened near TG4, causing irregular tape travel or change in tape height when tape stops travel.	◆ Adjust tape path.◆ Replace TG4 arm ass'y.	P.51 - P.53
33	Tape is not wound. (T reel caution)	Tape is not wound on T reel due to caution of T reel	 FWD torque is small. Gooseneck retainer is warped. Height of T reel base is low. 	 If FWD torque (T side in PB mode) is below 5g·cm, apply oil to T reel shaft. If T reel table is damaged, gooseneck retainer may be warped and need to be replaced. If tape is not wound T reel for any reason other then 1 and 2 above, replace T reel table. (The last figure of Part No. is "-3") 	P.54 - P.56
34	Change in B mechanism reel table torque. (Tape stops during tape travel	Check reel torque measuring method.	Check of FWD (PB mode) torque is not required on B mechanism, though it is checked at some service stations. Other mechanisms (A mechanism, etc.) were checked in the past.	(T side torque) • RVS brake torque 7-14g·cm • FWD (PB mode) torque need not be checked. (S side torque) • REV takeup torque 17 - 35g·cm • FWD (PB mode) torque 8 - 10.5g·cm	P.57
35	Remedy when grease is attached to tape. (Drum not rotating, Picture NG	Drum is not rotating and picture is NG due to deposit of MD grease on drum and tape.	Grease on MD spreads over drum base and deposits on drum through tape.	Change grease to non-spread type. Alcohol is normally used for cleaning at service stations. Former grease SG-055G, 7-651-000-09 New grease SG-941, 7-662-001-39	P.58, P.59

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36	Reel caution.	Reel is rotating but reel rotation cannot be detected due to caution.	Reel sensor is defective.	Replace LS chassis (S1) ass'y.	
37	Tape is caught at loading.	Burrs on the side of drum base stopper release interferes with the stopper, causing loading failure and unusual noise.		Replace drum base ass'y. • Change the width of stopper release.	
38	Caution (Failure of reset of reel table claw.	Reel pawl is not reset at the time of cassette DOWN. causing damage to the reel due to idle rotation.	The size of reel table dowel is NG.	Replace reel table. • Repair reel base dowel.	
39	Damper is separated.	Damper gets off the position, causing cassette compartment to move up quickly. Entry of foreign objects in the damper has also caused incorrect operation.	Pawl was not hooked correctly at the time of mounting the damper. Damper is pressed and separated when cassette compartment lid is mounted.	Mount the damper correctly.	



Tape not wound (Deformation of gooseneck retainer)-

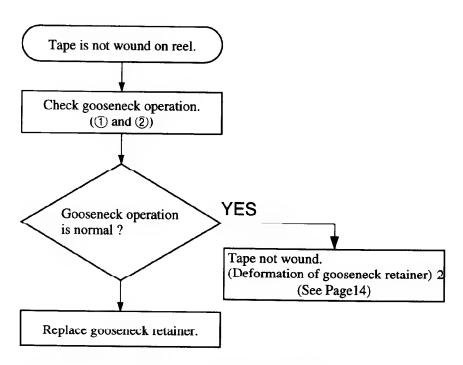
(Sympyom)

A. Gooseneck gear ass'y is not operating due to deformation of gooseneck retainer. Tape is not wound on reel table.

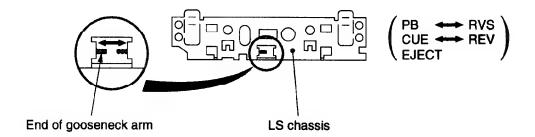
(Cause)

Gooseneck gear ass'y touches the gooseneck retainer due to warp of the retainer, so gooseneck gear does not operate properly and is not meshed with the gear of reel table.

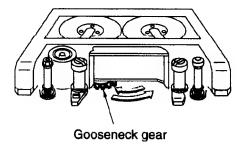
(Remedy)



Mounting screw No.2 3-976-055-01 Gooseneck retainer (2) 3-989-479-01 ① When LS is completed, check the operation of gooseneck gear ass'y from the hole at front of LS chassis.



- When the end of gooseneck arm is at extreme left, it is meshed with T reel table.
- When the end of gooseneck arm is at extreme right, it is meshed with S reel table.
- ② Check the operation of gooseneck gear ass'y at the time of cassette IN.



- Gooseneck gear moves momentarily toward T reel table at cassette IN to wind tape.
- Then, gooseneck gear moves toward S reel table to start loading. (Gooseneck gear stops moving before it reaches S reel table)



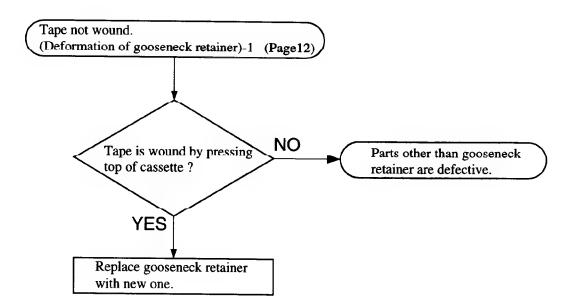
Tape not wound (Deformation of goundaidky trainers

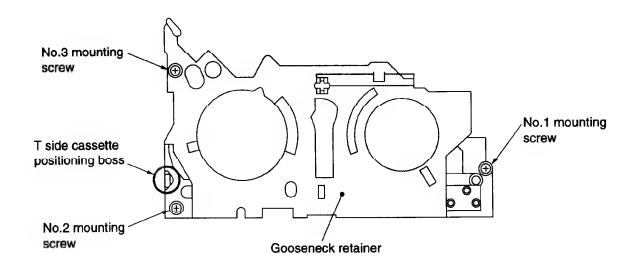
(Symptom)

B. Gooseneck retainer is warped or deformed. Cassette is not set in place and tape is not wound on reel.

(Cause)

Gooseneck retainer is warped (center top) or deformed (inclination of T side cassette positioning boss (see diagram at page 15)), so cassette is not set in place. Reel hub in cassette touches cassette shell and tape is not wound on reel.





	Former parts	New parts
Part No.	3-965-584-01	3-965-584-08
Shape of T side cassette positioning boss		
No.2 mounting screw	3-947-503-01 M1.4 x 2.5	3-976-055-04 Shoulder screw, M1.4 x 1



Tape not wound (Inclination of TG4)

No.3 mounting screw

(Symptom)

TG4 is bent, causing tape jamming (irregular tape travel) and loading/unloading failure (TG4 shaft is inclined from the groove of mechanism chassis).

(Cause)

- 1. Cassette of jamming tape was removed forcedly when the tape was caught in TG4.
- 2. The set was dropped off during unloading operation, and TG4 was separated from the groove of mechanism chassis.
- 3. LS chassis was pushed forcedly at the time of tape top processing.

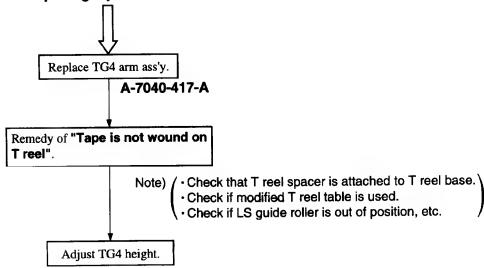
(Remedy)

Change the material of TG4 arm.

(Repair procedure)

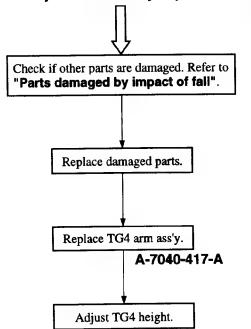
A. Tape is not wound correctly, causing deformation when removing tape.

Tape is not wound correctly and cannot be removed. Tape is entangled at TG4. TG4 arm ass'y is deformed by the force of pulling tape.



B. Deformation due to impact of fall.





Note) In general, TG4 arm ass'y alone is not damaged at the time of fall.



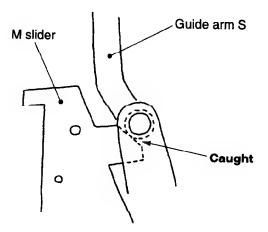
No eject (Trouble with M slider at unloading) Table is not worder conserve causing determined when removed to the conserve causing determined when the conserve causing determined in the conse

(Symptom)

The caulked portion of guide arm S is caught in the edge on the end face of M slider, causing unloading failure.

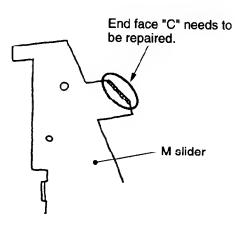
(Cause)

The end face "C" of M slider is small and the caulked portion of guide arm S was caught in the end face.



(Remedy)

Repair M slider end face "C".



(Repair procedure)

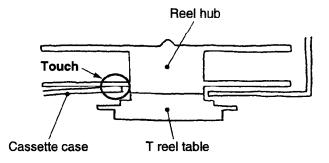
Replace M slider.



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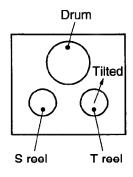
(Symptom)

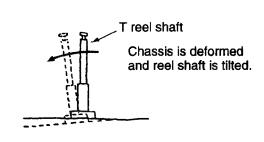
Reel hub touches the bottom of the case of video recording guide tape cassette, and tape cannot be wound due to failure of reel rotation.



(Cause)

- 1. Flatness of video recording guide tape cassette is NG.
- 2. The height of T reel is low due to deformation of chassis at cassette compartment DOWN with the spring force of cassette compartment, causing a fall of T reel shaft.





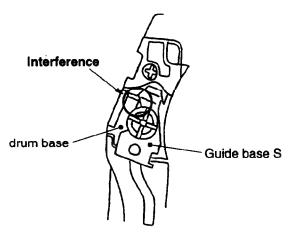
(Remedy)

- 1. Change the verticality tolerance of T reel shaft.
- 2. Correct the flatness of video recording guide tape cassette.
- 3. Change the height of T reel (spacer can be used temporarily).

- Replace video recording guide tape cassette.
- · Check T reel shaft for bending.



The corner of drum base groove is caught in the V-shaped guide base S at unloading, causing unloading failure.

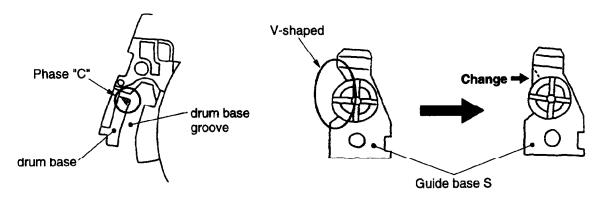


(Cause)

Interference due to variations of the corner of drum base groove and the shape of edge of guide base S (insufficient margin).

(Remedy)

- 1. Repair the corner "C" at entrance of drum base groove.
- 2. Change the V-shaped side of drum base to straight type.



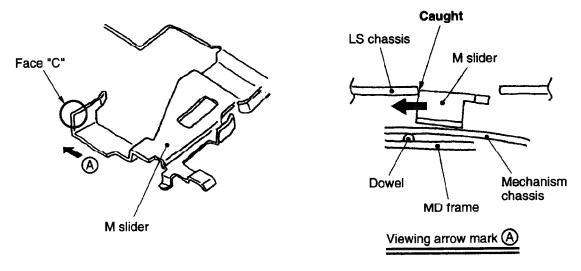
- Replace guide base S ass'y.
- Replace drum base ass'y.



The corner of M slider is caught in the hole of LS chassis, causing deformation of M slider and loading failure.

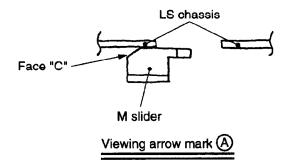
(Cause)

MD frame was mounted when the dowel was floating. The posture of M slider was changed due to warp of mechanism chassis, and the corner of M slider entered the hole of LS chassis.



(Remedy)

Repair the corner "C face" of M slider to prevent it from being caught.



(Repair procedure)

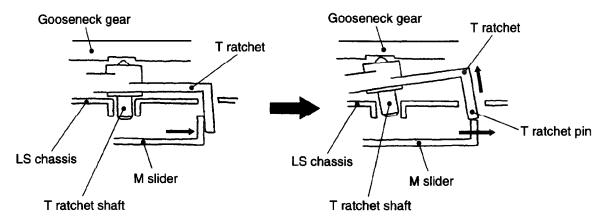
Replace M slider ass'y.



T ratchet pin rides over M slider and is caught at loading/unloading, causing failure of resetting T ratchet.

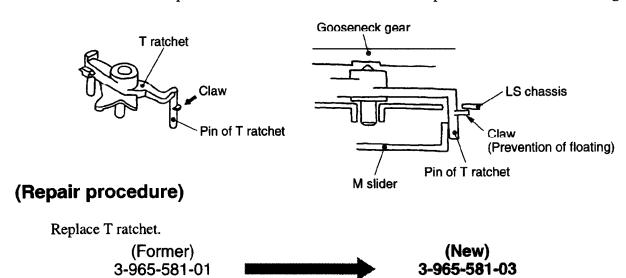
(Cause)

T ratchet shaft is loosened in the hole of LS chassis, and M slider is pushed to M slider at change of mode, so T ratchet is tilted. The pin rides over the wall of M slider and cannot be reset.



(Remedy)

- 1. Turn T reel with hand and check that it is meshed with reel table. (Factory check)
- 2. Pad the foot of T ratchet to prevent tilting.
- 3. Add a claw to the pin of T ratchet and hook on LS chassis to prevent T ratchet from floating.





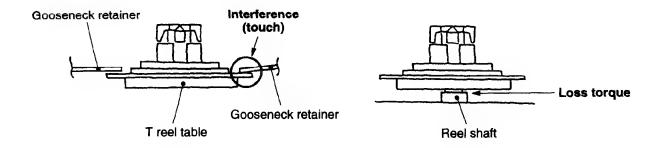
Tape not wound (Causing tape stock and Treel caution)

(Symptom)

Tape is not wound on T reel at PB mode, causing tape slack and T reel caution.

(Cause)

- 1. The outer surface of T reel touches gooseneck retainer due to deformation of gooseneck retainer (no clearance in the direction of height).
- 2. The margin of T reel height is insufficient (the height of reel table is low).
- 3. Loss torque between reel table and reel shaft is large, reducing FWD winding torque.

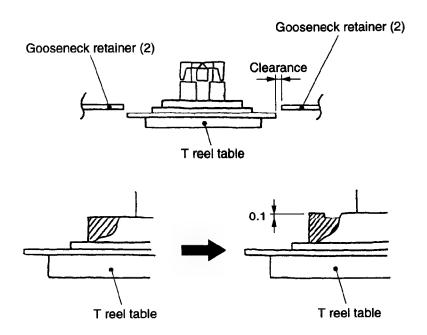


(Remedy)

- 1. Change the size of T reel hole for gooseneck retainer (prevention of interference). Gooseneck retainer (2)
- 2. T reel table height +0.1 UP
- 3. Apply oil to reel shaft and change the material.
- 4. Check FWD winding torque.

Former type Without check and standards

After change FWD torque 4g·cm or more



- 1. Move T reel up and down and check that it is not loosened (gooseneck retainer touches T reel table), and change gooseneck retainer with gooseneck retainer (2).
- 2. When winding torque is small (less than 4g·cm), apply oil to T reel shaft.
- 3. If it is not corrected by 1 and 2, replace T reel table.
- 4. If it is not corrected by 1-4, replace LS chassis (reel shaft may be tilted).



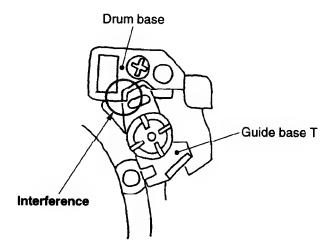
Threading not completed (Change V-shaped drum base)

(Symptom)

The durm base touches the guide base T at loading, causing failure of tape threading.

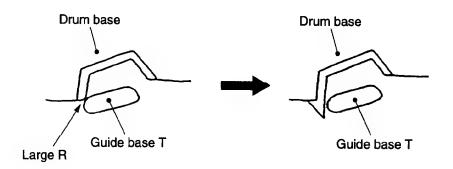
(Cause)

The durm base touches the guide base T at the position marked "O".



(Remedy)

Extend the V-shaped portion at the corner of V-shaped drum base.



(Repair procedure)

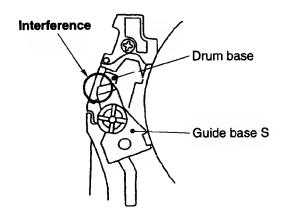
Replace drum base ass'y.



No loseing (Tape gui<mark>ghth to her though thing</mark> all welling

(Symptom)

Tip of guide base S is caught in the triangle rib at the entrance of drum base, causing loading failure.



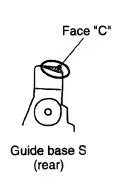
(Cause)

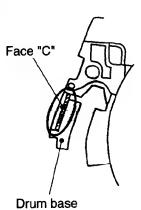
Tip of guide base S caused interference due to variations of position and thickness of drum base rib (insufficient margin).

(Remedy)

1. Add face "C" to the tip of guide base S.

Add face "C" to the entrance triangle rib of drum base.





- Replace guide base S ass'y.
- Replace drum base ass'y.



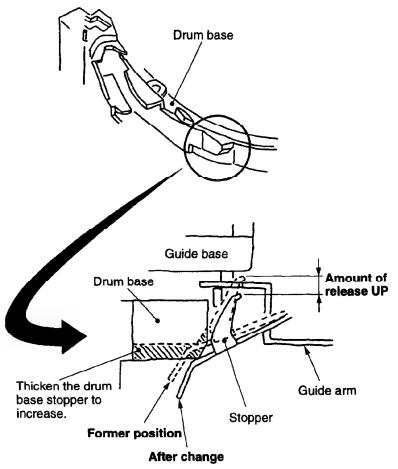
Stopper is not released at guide load, causing loading failure.

(Cause)

Drum base stopper opens at its release position, causing insufficient margin of releasing the claw from the hook of guide arm.

(Remedy)

Thicken the drum base stopper to increase the amount of releasing the stopper.



(Repair procedure)

Replace drum base ass'y.



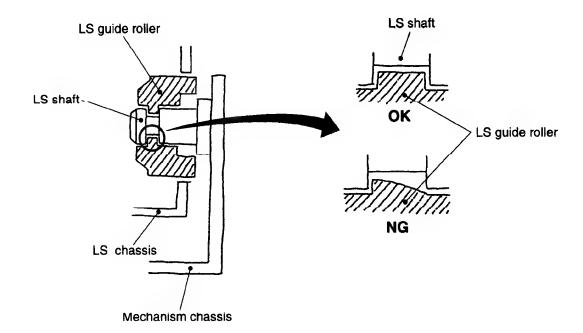
is not weur

(Symptom)

LS guide roller is separated, causing loading /unloading failure. Tape is not wound on reel (cassette gets out of position).

(Cause)

Releasing force of LS guide roller is small due to improper shape of claw that is caught in the groove of LS shaft.



(Remedy)

Correct the shape of LS guide roller.

- Replace LS guide roller.
- Do not use the dismounted roller.



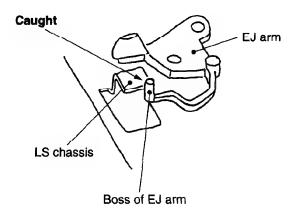
Tabe is not wound (Separation of itS makbaothwelduor)

(Symptom)

C-IN (C.C. LOCK) SW is always ON and tape is loaded in the state of cassette compartment UP.

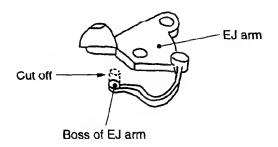
(Cause)

EJ arm is deformed at the time of assembling and the boss on the spring is caught in LS chassis, and SW is kept pressed.



(Remedy)

Cut off the boss that is caught in LS chassis of EJ arm.



(Repair procedure)

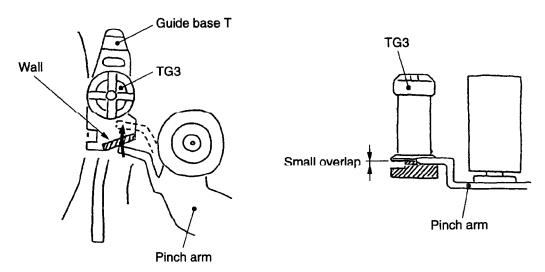
Replace EJ arm.



The tip of pinch arm gets over the wall of guide base and enters between guide base T and TG3, causing loading failure.

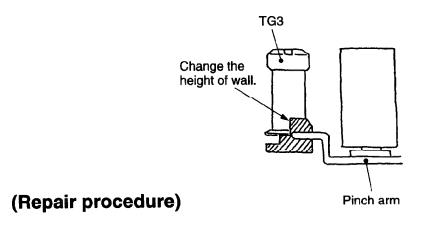
(Cause)

The amount of overlap of the tip of pinch arm and the wall of guide base T is small.



(Remedy)

Change the height of wall of guide base T to obtain margin to the tip of pinch arm.

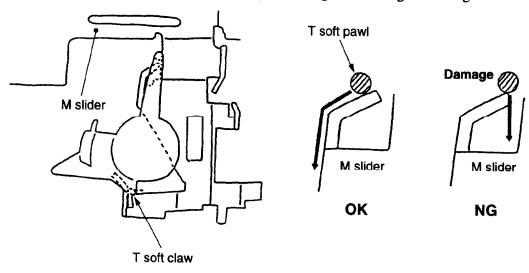


Replace pinch arm with improved part.





The shaft at tip of T soft claw is caught in the bent portion of M slider and damaged at the time of unloading. T soft brake is not working or is caught at loading/unloading.

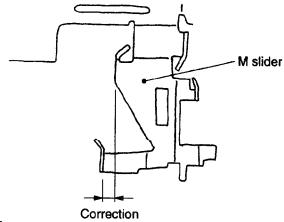


(Cause)

Insufficient margin due to variation of the position of bent portion of M slider.

(Remedy)

Correct the width of bent portion of M slider.

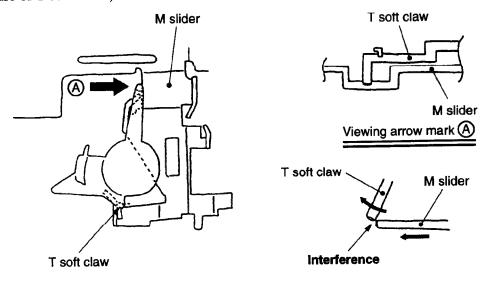


(Repair procedure)

Replace M slider ass'y.



The tip of T soft claw interferes with the corner of M slider at loading, and T soft brake torque (failure of T soft brake) becomes small.

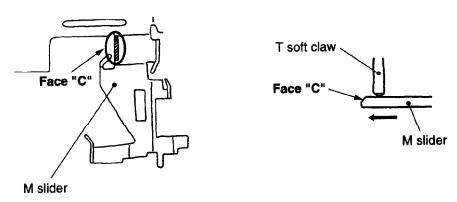


(Cause)

Insufficient margin of clearance between the tip of T soft claw and M slider in the direction of height.

(Remedy)

Add face "C" to the position that touches T soft claw of M slider.



(Repair procedure)

Replace M slider.



"No cassette" display in the classical partie of the picture ?

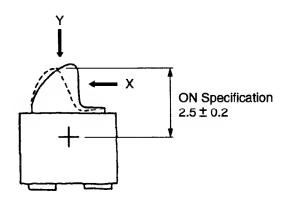
(Symptom)

C-IN SW (C.C. LOCK) is not ON at cassette DOWN and "No cassette" is displayed.

(Cause)

Insufficient margin of stroke at ON point of C-IN SW

- 1. SW ON point specification differs from standards of using MD.
- 2. Clearance between SW lever dowel and case hole is large, causing improper fit.



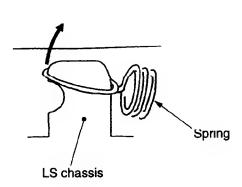
(Repair procedure)

Replace SW with improved C.C. LOCK switch (1-572-680-11).

LS chassis spring is separated, causing incorrect operation (spring is caught by entry of foreign objects). Poor picture quality. (decrease in tension, etc.)

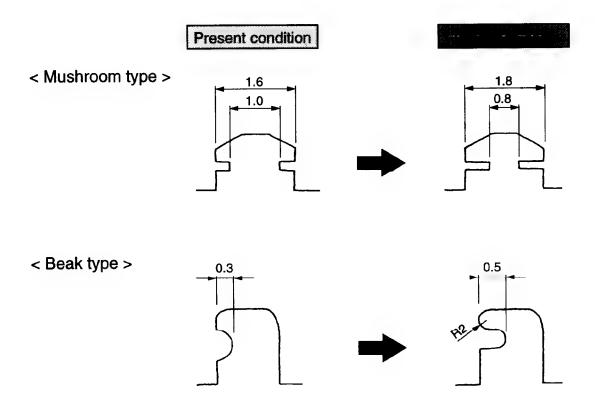
(Cause)

- 1. Spring is separated due to failure of hooking the spring claw (improper assembling).
- 2. Spring is easily separated by a touch of spring claw due to incorrect phase of spring hook or small overlap between LS chassis spring claw and spring hook.



(Remedy)

- 1. Push spring hooks with jig and check (prevention of hooking failure).
- 2. Change the shape of spring claw to increase overlap between spring claw and spring hook, and margin UP against separation of spring.



- Mount the spring hook correctly to prevent separation (repair).
- Improved parts are available from our stock.



Tape not ejected (Capstan motor not rotating)

(Symptom)

Capstan motor does not rotation due to damage to driver IC, causing loading failure at tape IN or EJECT failure.

(Cause)

• Damage due to over-current

Short-circuit between terminals due to incorrect handling, short-circuit due to entry of foreign objects or slant insertion of flexible cable.

- Remove foreign objects and check for slant insertion of flexible cable.
- Replace capstan motor, if driver IC is damaged.



separation of came the second description of

(Symptom)

Camera picture swings at ON of steady shot compensation.

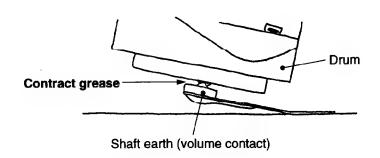
* This can be easily checked in ZOOM mode.

(Cause)

Shaft earth vibration interferes with the oscillation frequency of angular velocity sensor during drum rotation, causing failure in operation of steady shot preventive sensor and swinging of camera picture at ON of steady shot compensation.

(Repair procedure)

1. Apply grease to the tip of the volume contact of shaft earth.



2. Replace shaft earth with improved part.



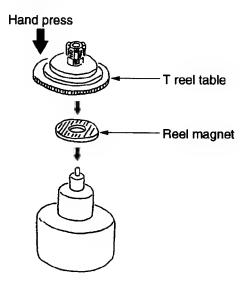
Separation of real table promet (2 deleter the 30 mileniws)

(Symptom)

Adhesive force of S/T reel table rotation detect magnet seat is insufficient, causing separation of magnet and resulting in caution (reel table rotation cannot be detected) or rotation failure.

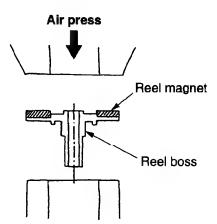
(Cause)

Magnet seat was stuck by a press of reel table boss with hand, causing variation in adhesive pressure and separation of reel table magnet.



(Remedy)

Use air press machine to obtain constant pressure on magnet seat for improvement.



(Repair procedure)

Replace reel table.



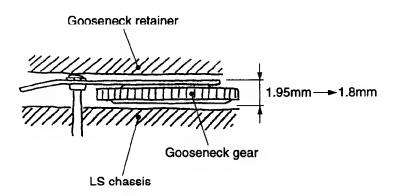
Gooseneck gear is caught between gooseneck retainer and LS chassis due to deformation of gooseneck retainer, causing failure in operation of gooseneck gear.

(Cause)

Insufficient margin of clearance between gooseneck retainer and LS chassis, and the thickness of gooseneck gear.

(Remedy)

- 1. Change the thickness of gooseneck gear, from 1.95 to 1.8mm.
- 2. Change the height of foot of gooseneck retainer + 0.05mm (from 2.20 to 2.05mm, clearance between foot and LS chassis is "0").



(Repair procedure)

Replace gooseneck gear.

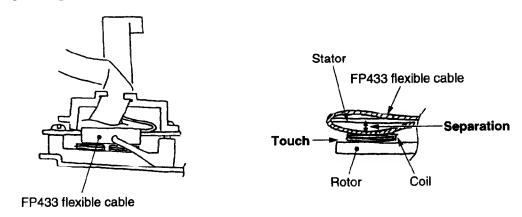
rien ei e

(Symptom)

Coil mount of FP433 flexible cable of capstan motor is floating and the coil touches the rotor, causing unusual noise, incorrect rotation and swinging of picture.

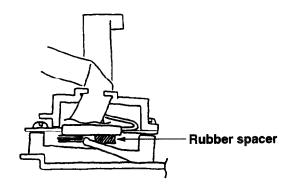
(Cause)

Adhesive power of FP433 flexible cable is reduced due to oil which was left at the time of pressing the capstan motor to the stator.



(Remedy)

- 1. Clean stator (driver IC side) with alcohol.
- 2. Add rubber spacer between flexible cable and capstan spacer (Mount side) to forcedly prevent the flexible cable from floating.



- 1. Clean the stator.
- 2. Add rubber spacer. 3-987-953-01



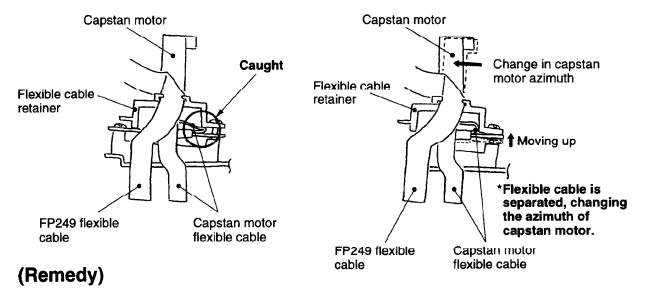
Failure in loading/Liploading control carb, sharmoning to the same in the state of

(Symptom)

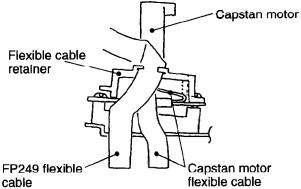
Tape damage/wrinkle due to change in capstan motor azimuth.

(Cause)

The folded portion of capstan motor flexible cable is caught and released at the time of assembling the flexible cable retainer, causing tape wrinkle or damage due to change in capstan azimuth and bending of tape.



Change the shape of flexible cable retainer to prevent overlap of flexible cable retainer and capstan motor flexible cable.



(Repair procedure)

Repair flexible cable.



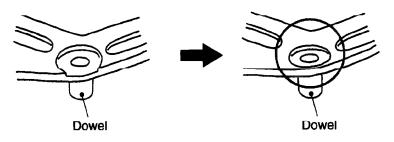
LS arm pin is deformed, causing failure in loading/unloading operation.

(Cause)

- 1. The set was dropped off, causing overload on the dowel of LS arm in the groove of cam gear.
- 2. LS chassis was forcedly pulled out by user for unloading when unloading failure occurred by tape jamming, caution, etc.
- 3. LS chassis was pressed forcedly (in the direction of loading) by user during loading/unloading.

(Remedy)

- 1. Change the dowel of LS arm from choked type to forged type.
- 2. Change the shape of the base at the root of dowel.



LS arm

(Repair procedure)

Replace LS arm **3-965-532-21**

- * Check to see if other parts are deformed.
 - 1 LS chassis
 - 2 T soft brake claw
 - 3 Tension regulator plate
 - 4 LS guide roller



Entrance contact output is small, causing V sync failure and picture distortion.

(Cause)

The head projection was lowered to prevent the bending of picture, causing V SYNC failure due to adverse reaction.

(Remedy)

Change the projection of drum head.

(Repair procedure)

Replace drum ass'y.

Playback output of one CH becomes small due to difference in output of CH1/CH2, causing noise (white noise, dot noise, etc.) in LP picture.

(Cause)

The upper drum is tilted due to clearance between drum bearing and shaft, so the height of CH1/CH2 head becomes out of position, causing difference in the pitch of CH1/CH2 of recording pattern and small playback output from one CH, which largely affects LP due to narrow track width even when the amount of pairing slip is the same.

(Remedy)

Change the drum bearing and shaft from insertion type to press-in type to prevent inclination due to clearance.

(Repair procedure)

Replace drum ass'y.



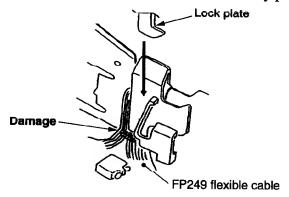
asige to FFS

(Symptom)

FP249 flexible cable is damaged by cassette compartment lock plate, causing failure in the sensor system for reel rotation detection, C.C. LOCK, etc.

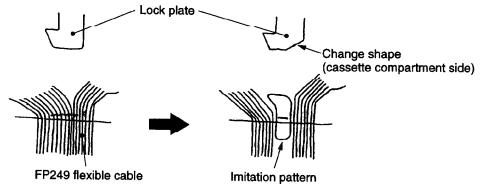
(Cause)

Cassette compartment lock plate was pressed to FP249 flexible cable due to over-stroke at cassette compartment DOWN, and FP249 flexible cable was cut off by pressure.



(Remedy)

- 1. Change pattern of FP249 flexible cable to prevent the signal pattern from touching the lock plate.
- 2. Add imitation pattern to the position in contact with the lock plate of FP249 flexible cable for reinforcement.
- 3. Change the shape of tip of lock plate to reduce the area of contact with flexible cable.



(Repair procedure)

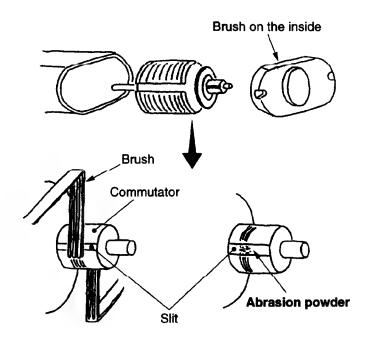
If flexible cable is found damaged by microscope or magnifier, replace chassis (S1) ass'y even when the same trouble does not occur again.



Loading motor is not rotating due to short-circuit between slits of loading motor. Fuse blows out (due to short-circuit between terminals) and power cannot be set to ON.

(Cause)

The slits were shorted by abrasion powder from worn commutator of loading motor and the paint chips on lapping tape dropped off at the time of lapping the commutator, so the brush was contaminated with the mixture of paint chips and contact grease, causing in increase of wear of commutator and short-circuit between slits with the abrasion powder from the worn commutator.



(Remedy)

- Introduce ultrasonic cleaning.
 Commutator lapping → Ultrasonic cleaning → Contact grease coating
- 2. Make arrangement to prevent deposit of foreign objects after coating contact grease.

(Repair procedure)

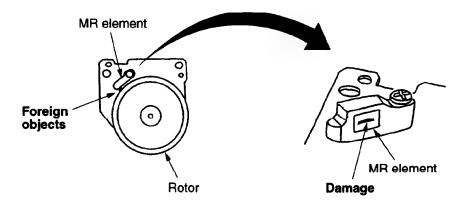
Replace loading motor.



Capstan motor rotor is caught and does not rotation due to entry of foreign objects between the rotor and the MR element, causing damage to the surface of MR element, tailure of servo operation and runaway of capstan motor.

(Cause)

- 1. Metallic objects entered from the opening of cassette compartment or small stones or sands deposited between the rotor and the MR element.
- 2. Metallic powder from a tap deposited on the rotor when tightening the MD frame screw.



- 1. Clean the area between capstan motor and MR element.
- 2. When MR element is damaged, replace capstan motor.



Separaticity exect

(Symptom)

Guide base is separated when unloading, and is caught at the time of loading/unloading.

(Cause)

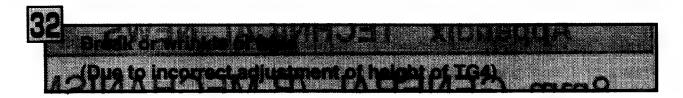
Stopper was deformed at the time of assembling and guide base was separated due to decrease in the amount of catching the guide arm.

(Remedy)

S side Add a dowel to the stopper S to increase the holding force of GB stopper S and its margin at the time of deformation of the guide base.

(Repair procedure)

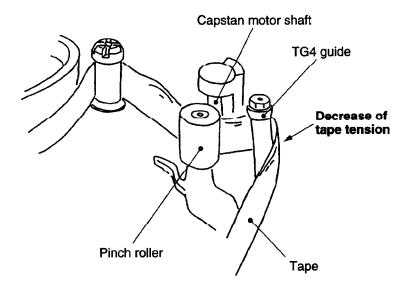
Replace stopper S.



When the height of tape suddenly changes at reverse operation of CUE/REV mode tape or traveling of tape in reverse direction, the capstan motor shaft and pinch roller do not follow the change at the contact position, so tape is bent and pressed, causing break of wrinkle. Also, tape is slackened at STOP mode (pinch OFF) and the height of tape changes largely, causing tape break or wrinkle even when it is pressed to the pinch roller.

(Cause)

- 1. Tape does not travel smoothly over the capstan motor shaft and cannot follow the sudden change in the height of tape in tape travel mode.
- 2. Tape tension decreases at the upper side near the exit side TG4 guide, causing irregular tape travel.



- Re-adjust tape path according to the technical news which has been issued.
- Replace TG4 arm ass'y.

8mm GENERAL (B MECHANISM)

SONY.

テクニカル ニュース TECHNICAL NEWS No. PV-965018

Category SL

Date Jul. 21. 1996

ソニー株式会社 PAV カンパニー Sony Corporation PAV Company

件名(Subject)

TAPE DAMAGE DUE TO DISCREPANCY IN TG-4 HEIGHT ADJUSTMENT

(Symptom)

When repeatedly switching between PB and REV and between REC and STOP, tape damage as given below might be caused. (Fig. 1)

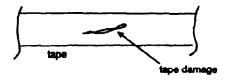
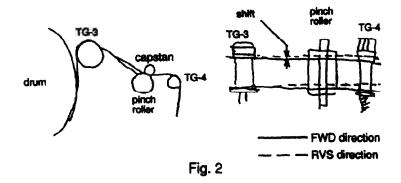


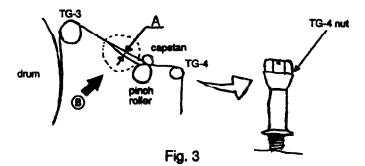
Fig. 1

(Cause)

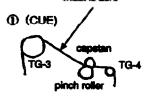
Discrepancy in the TG-4 height adjustment leads to more deviation of the height of tape running between the capstan and TG-3 in the FWD and RVS directions. This results in tape warp causing tape wrinkle to be produced by the pinch rollers. (Fig. 2)



(Procedure)

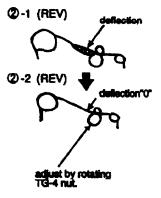


① Run tape (regardless of the tape type). View the part indicated by ① (CUE) the arrow ⑧ from above the MD and place a point of view so that the upper edge and the lower edge of tape are aligned with each other and look like a line (A=0) at CUE.



view so that this

② Keep the point of view, perform REV, and adjust the TG-4 height ②-1 (REV) by rotating the TG-4 nut so that the width A produced due to deflection is zero.



- ③ Perform CUE/REV again and verify that the upper and lower edges of the tape are on the same position.
 - * If this adjustment cannot be made by rotating the TG-4 nut, the TG-4 nut should be replaced.
- Repeat CUE/REV about 5 times at the tape top portion of E5-120
 thin tape (the picture is already recorded) and verify that there is
 no noise due to tape damage.

SONY

No.

PV-985003

Category

SL

Date

February 13, 1998

SONY Corporation PAV Company

TECHNICAL NEWS

Subject

Remedial measures when the trouble "T Reel Does Not Takes Up Tape " occurs (T reel caution)

[Symptom]

When the trouble "T Reel Does Not Takes Up Tape " occurs in the type B mechanism, take the following remedial measures.

[Remedy]

Perform check and repair in accordance with the following the procedures.

1. FWD torque is small

If the FWD torque (measuring T side torque during playback) using torque cassette, is 5 g·cm or less, there is a possibility that the take up torque becomes insufficient due to the torque loss between reel shaft and reel table. Apply oil to the T reel shaft as shown in Fig. 1.

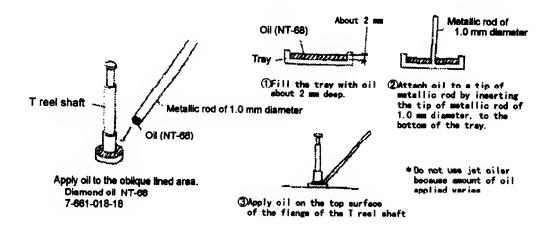
2. Gooseneck retainer is bent

When there are scars on the gooseneck retainer and T reel table as shown in Fig. 2, the gooseneck retainer interferes mechanically with the T reel due to bending of the gooseneck retainer. When there are scars, replace the gooseneck retainer.

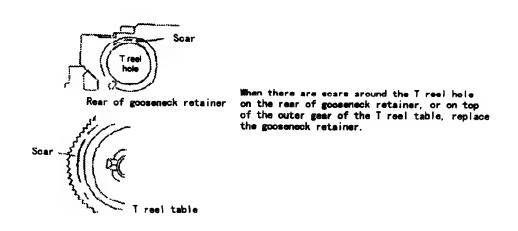
3. T reel height is low

When the trouble "T Reel Does Not Takes Up Tape " occurs in the cases other than the above describe items 1 and 2, add spacer to the T reel as shown in Fig. 3.

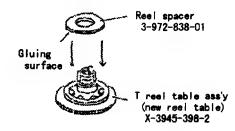
[Fig. 1 FWD torque is small]



[Fig. 2 Gooseneck retainer is bent]



[Fig.3 T reel height is low]



If tape slack occurs even though the FWD torque and gooseneck retainer are normal, it is anticipated that the T-reel height is low. Therefore, add one piece of reel spacer.

Note: It means to attach an additional spacer with glue to the new reel table that has been informed by Technical News earlier.

SONY

TECHNICAL NEWS

No.

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Category

SL

Date

September 25, 1998

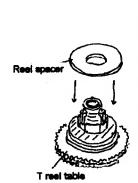
SONY Corporation PAV Company

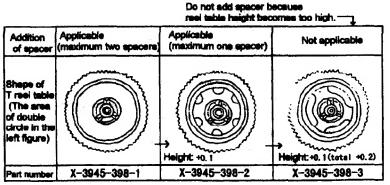
Subject

Unification of Improvements "T. Reel Height Change" for the Trouble of Reel Does Not Wind Tape

[Content]

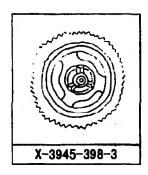
For the troubles on market that "reel does not wind tape", the remedial measures are Issued by the technical news PV-985016. At present there are three different remedial measures are being introduced to market. The remedial measure for this trouble is unified to the method using the suffix -3 hereafter due to the part supply problem and for improvement of part reliability.





[Remedial measure]

Supply of the parts having suffix -1 and -2 is stopped. Part having suffix -3 only is supplied.



SONY

REVISED

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TECHNICAL NEWS

SONY Corporation PAV Company

Subject

Specification change of B mechanism reel table torque

This technical news describes the changes related to the reel table torque of B mechanism. Be careful that the torque check method is also changed and becomes different from that of the other existing mechanism deck (such A mechanism).

(Contents)

Use the following new specification values of reel table torque when it is measured using the torque cassette (GD-2086) in the models using B mechanism.

< Takeup side torque >

- Brake torque in RVS mode 7 to 14 g·cm
 The RVS mode is the mode in which the EDIT SEARCH "-" is kept depressed during PB PAUSE. The takeup side torque is measured in this mode.
- The torque value in FWD (PB mode) is not checked in B mechanism. (This is the point to be noted.)

Note: The takeup side torque has been measured in the PB mode in the A mechanism. However, in B mechanism, the takeup side torque is measured only in the RVS mode. In addition to it, the torque value tends to show the lower value in B mechanism when compared with the A mechanism. It has caused the takeup reel table replacement in many cases.

The torque value tends to shown the relatively lower values in B mechanism due to differences of structure and parts. It causes no problem at all. Do not check the takeup side torque using the PB mode in B mechanism.

< Supply side torque >

- · Back tension in FWD mode (This torque should be checked in PB mode.) 8 to 10.5 g·cm
- Takeup torque in REV mode (The mode in which the REW button is kept depressed after PB)
 17 to 35 g·cm.

SONY.

TECHNICAL NEWS

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Sony Corporation PAV Company

Subject

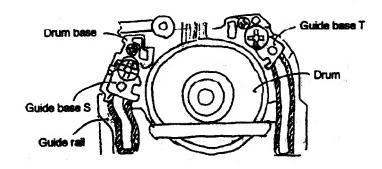
Remedy when grease is attached to tape

(Contents)

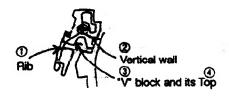
When grease which is oozed from type B mechanism of 8 mm, contacts tape, take the following remedy.

(Remedy)

- 1. Remove grease (by wiping off grease using alcohol). The areas which must be wiped to remove grease, are shown below.
 - (1) Clean guide rail and guide base supply/takeup sliding surface of drum base using alcohol.



- Water drops may be visible at guide base supply/takeup sliding surface of drum base (the areas which are shown by slanted lines in the illustration). The water drops are oil contents which is oozed from grease.
- (2) Clean ① to ④ of supply guide base using alcohol.



(3) Remove LS chassis block assembly and remove grease from it using alcohol. Supply and takeup guide base stopper block: two areas



2. Grease is changed. (Changed to grease SG-941 which has small amount of ooze.)

Former

New

SG-055G (green)

→ SG-941 (blue)

7-651-000-09

7-662-001-39